National Défense
Defence nationale

LAND FORCE
SUSTAINMENT
(ENGLISH)

Issued on Authority of the Chief of the Defence Staff
Publiée avec l'autorisation du Chef d'état-major de la Défense

OPI: Director of Army Doctrine 1999-01-18

Canada

FOREWORD

GENERAL

1. Army doctrine recognizes six combat functions; command, manoeuvre, information operations, firepower, protection, and sustainment, which together form the basis of combat power. This manual will provide the doctrine for the combat function of sustainment in the context of manoeuvre warfare.

2. This sustainment doctrine will describe the key concepts used by the Army to ensure that the materiel and services required to complete tactical missions are available to our combat forces. The target audience for this manual include all Army officers undertaking professional studies, officers of other services within the Canadian Forces (CF) wishing to learn the fundamentals of sustaining army tactical operations, as well as officers from allied countries.

3. B-GL-300-004/FP-001, *Sustainment* is one of the Army's keystone doctrine manuals. Knowledge and understanding of Sustainment is dependent on a thorough knowledge of the other warfighting keystone doctrine manuals. B-GL-300-000/FP-000, *Canada's Army*, our capstone doctrine manual, outlines the fundamentals upon which the Army is based. B-GL-300-001/FP-000, *Conduct of Land Operations – Operational level doctrine for the Army* and B-GL-300-002/FP-000, *Land Force Tactical Doctrine for the Army* outline how the Army will prepare for operations and tactics (manoeuvre doctrine). B—GL—300-003/FP-000, *Command* provides the doctrine on command and control of forces in tactical operations. *Sustainment* comes next in this series of manuals. Taken together with the Army training doctrine, these manuals provide the overall principles and concepts that the Army will use in future operations.

4. In *Sustainment*, there is some change in terminology, but little change to the way that the Army sustains operations. The biggest change is the acknowledgement that the Army will almost always operate within a coalition force and that for corps level operations, the U.S. corps sustainment doctrine is accepted as Army doctrine. This manual will show how the Army sustainment activities fit within this coalition environment. It will have its biggest impact on the staff colleges and schools as the concept of coalition operations is now imbedded in all of our doctrine.

104-03607/

TRAIN FOR WAR, ORGANIZE FOR PEACE

5. The Army conducts its training based on the worst case scenario – war. In peace, however, the Army is organized based on geographical and political guidelines and is capable of reorganizing into warfighting formations prior to actually carrying out combat operations. Given sufficient lead time, Canada must be prepared to mobilize both the Militia and the civilian population to create a larger army should there be a very large threat. Canada has already mobilized in this way twice in the twentieth century.

6. The doctrine presented in this manual discusses only the warfighting formations and their employment. Should there be sufficient time to mobilize, the Army could create a division. Should the mission be of shorter duration, like the Gulf War of 1990-91, the Army could provide a brigade group, which is the main task given to the Army in the Defence Planning Guidance (DPG).

7. As already mentioned, the Army in peacetime is organized along geographical lines in four Land Force Areas. The Western Area, the Central Area, and the Quebec Area each have a brigade group. The Atlantic Area is home to the Army's largest training centre, the Combat Training Centre at Gagetown, New Brunswick. Currently each of these four areas has an Area Headquarters, which commands the Army units and bases within the geographical zone.

8. Should the Army be required to provide the brigade group tasked in the DPG, each of the four areas would likely provide components of the required force. To sustain the operation, the areas would also provide elements of the operational level sustainment organization, the Canadian Support Group (CSG). In peacetime, the elements, which are called Area Support Units (ASUs) and Area Support Groups (ASGs), are part of the area structure and provide support from the bases at which they are located. The General Support Group (GS Gp) in Kingston is the cadre Headquarters of the CSG and prepares the contingency plans to allow the reorganization of the ASGs and ASUs into the CSG.

9. Figure 1 shows the units and formations and how they are organized for peace, for the DPG task and for the doctrinal model of mobilization. This framework provides the link between the Army's area structure today and how the Army will reorganize to become the warfighting formations described in the remainder of this manual. Similar

structures are also developed for health service support (HSS), engineering, communications and military police organizations but are not shown in this diagram.

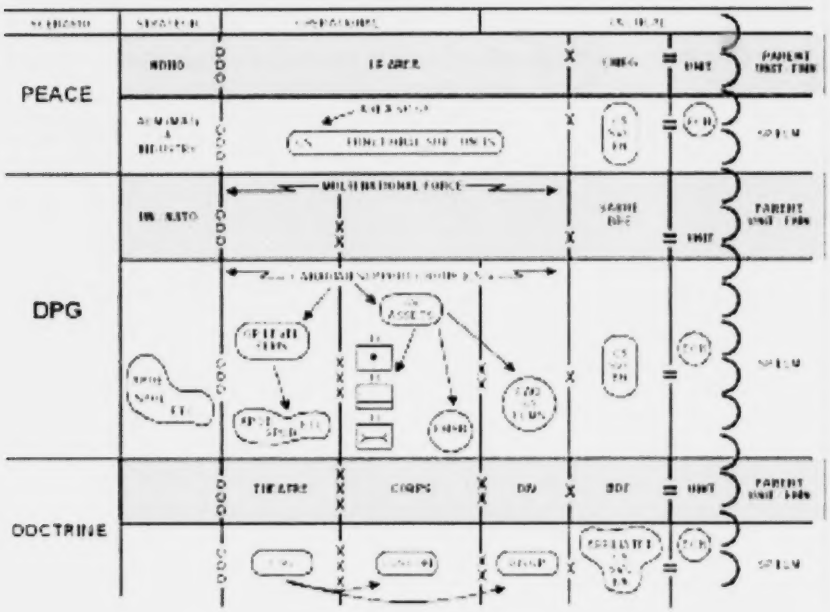

Figure 1 Train

ARMY STRUCTURES

10. The Army has published structures for both our forces and a potential enemy force in the Staff Officer's Handbook contained in the Electronic Battle Box. This is done to permit the detailed study and war gaming of army organizations. Our doctrinal combat force is based on the Canadian policy decision that it is most likely that an Army formation would be part of a coalition force with a larger ally as the Lead Nation. Further, the development of our doctrinal force acknowledges that Army officers have to understand employment of forces which our allies currently field and that they may serve on staff of the Lead Nation or another ally's tactical headquarters.

11. The current Canadian doctrinal model is X Allied Corps, based on the U.S corps with Canadian, German and British formations attached. The Canadian portion of the corps is a division and an independent brigade

group. The brigade group represents our Defense White Paper task of deploying a brigade group on operations. Therefore, this brigade group is fielded with equipment currently in the Army inventory. The division, on the other hand, is for training purposes and the equipment currently fielded by allies is included to allow for maximum training benefit.

12. This manual does not present detailed organizations; they are included in the Staff Officers Handbook and the Electronic Battle Box. However, it is virtually impossible to present a description of the systems and how they apply within the normal battlefield layout without discussing organizations such as the corps, divisions, brigades, brigade groups and units. This is done throughout the manual and it is important that the reader remembers the principles on which the organization model was prepared.

13. For purposes of working within an allied corps, the Army has adopted the US FM 63-3 *Corps Support Command* (COSCOM) doctrine. It is not intended to give a detailed description of the US COSCOM doctrine in this manual on sustainment. There is, however, some discussion of how Canadian sustainment activities are linked to the Lead Nation activities. It should be readily apparent that knowledge of FM 63-3 will be essential for the study of sustainment activities at the corps level.

JOINT DOCTRINE

14. The Army formations and units on operations will undoubtedly be part of a Canadian Joint Force. The doctrine on Joint Force operations provides guidance on how the joint force will be implemented. The joint level of doctrine includes the keystone manual B-GG-005-004/AF-000 *CF Operations*. Throughout there are references to joint organizations and responsibilities to describe accurately the linkage of the sustainment system which, as described in the first chapters, stretch from Canada through the operational level to the fighting units and soldiers. Full understanding of how the combat function of sustainment fits into the complete area of joint operations can only be achieved through an understanding of the joint doctrine manual.

LAYOUT

15. This manual is divided into two parts. In Part 1, the sustainment combat function will be described, including its four systems:

Replenishment, Land Equipment Management System (LEMS), Personnel Support Services (PSS) and Health Service Support (HSS). The concept of Sustainment Engineering is also introduced. This Part ends with a description of sustainment operations in unique operations, specific environments and operations other than war. Note that the LEMS and HSS system are described from the tactical to the strategic level as the support is triggered by a personnel or equipment casualty at the tactical level. The Replenishment and PSS systems are described from the strategic to the tactical levels as this support is generated at the strategic level.

16. Part 2 of the manual will cover the topic of reconstitution of forces. This is a combat operation aimed at restoring the combat power of an organization that has suffered significant combat losses. Reconstitution overlaps many of the combat functions including command, protection and sustainment. This topic has been included in *Sustainment* in view of the large sustainment effort involved in various reconstitution operations.

TABLE OF CONTENTS

FOREWORD ..... **i**

General i
Train For War, Organize For Peace ii
Army Structures iii
Joint Doctrine iv
Layout iv
table of figures x

CHAPTER 1 SUSTAINMENT OF ARMY OPERATIONS **1**

Introduction 1
Continuum Of Operations 1
Manoeuvre Warfare 2
Combat Power 4
Integration Of The Combat Functions 5
Sustainment 6
The Threat To The Sustainment System 7
Sustainment Terminology 10
Summary 12

CHAPTER 2 THE SUSTAINMENT CONCEPT **13**

Introduction 13
Fundamentals 14
Sustainment Tenets 16
Sustainment Factors 16
Battlefield Layout 18
The Sustainment Concept 22
The Systems 26

CHAPTER 3 THE REPLENISHMENT SYSTEM **29**

Role 29
The Replenishment System 29
Tasks Of The Replenishment Sytem 37
Summary 40

CHAPTER 4 THE LAND EQUIPMENT MANAGEMENT SYSTEM **41**

Role 41
The Land Equipment Management System 41
Tasks Of The Land Equipment Management System 46

Table of Contents, *continued*

Summary 48

CHAPTER 5 THE PERSONNEL SUPPORT SERVICES SYSTEM 49

Role 49
The Personnel Support Services System 49
Tasks Of The Personnel Support Services System 50
Summary 57

CHAPTER 6 HEALTH SERVICES SUPPORT SYSTEM 59

Role 59
The Health Services Support System 59
Tasks Of The Health Services Support System 61
Summary 65

CHAPTER 7 SUSTAINMENT ENGINEERING 66

Role 66
Sustainment Engineering 66
Tasks Of Sustainment Engineering 67
Summary 69

CHAPTER 8 SUSTAINMENT IN UNIQUE OPERATIONS, SPECIFIC ENVIRONMENTS AND OPERATIONS OTHER THAN WAR 70

Introduction 70
UNIQUE OPERATIONS 70
Airmobile/Airborne Operations 71
Amphibious Operations 71
Encirled Forces Operations 72
SPECIFIC ENVIRONMENTS 72
Cold Weather 72
Built-Up Areas 73
Mountains 74
Desert 74
Jungle 75
Nuclear, Biological And Chemical Environment 75
OPERATIONS OTHER THAN WAR 76
Peace Support Operations 76
Domestic Operations 79
Summary 79

Table of Contents, *continued*

CHAPTER 9 RECONSTITUTION OPERATIONS 81

Introduction.....81
Reconstitution Operations.....81
The Reconstitution Process.....82
CSS Considerations 86
Summary.....88

TABLE OF FIGURES

Figure 1 - 1 Combat Power 4
Figure 1 - 2 Sustainment 7
Figure 2 - 1 Battlefield Layout 18
Figure 2 - 2 Non-Contiguous Battlefield Layout 19
Figure 2 - 3 Levels of Support 23
Figure 2 - 4 The Echelon System 26
Figure 3 - 1 The Replenishment Funnel
Figure 3 - 2 Tactical Replenishment of the Canadian Division 35
Figure 3 - 3 Tactical Replenishment of the Independent Brigade Group 37
Figure 4 - 1 The LEMS 42
Figure 5 - 1 Personnel Replacements - Movement Forward 52
Figure 6 - 1 The Patient Evacuation System 62
Figure 9 - 1 The Reconstitution Process 83

CHAPTER 1
SUSTAINMENT OF ARMY OPERATIONS

INTRODUCTION

INTRODUCTION

CONTINUUM OF OPERATIONS

MANOEUVRE WARFARE

COMBAT POWER

INTEGRATION OF THE COMBAT FUNCTIONS

SUSTAINMENT

THE THREAT TO THE SUSTAINMENT SYSTEM

SUSTAINMENT TERMINOLOGY

SUMMARY

1. Army doctrine has evolved during the period 1996 to 1998 with the acceptance of manoeuvre warfare as the basis of our operational and tactical level doctrine. During the same timeframe the impact of the downsizing of the Canadian Forces following the collapse of the Soviet Union, severe budget constraints and increased activity in Peace Support and Domestic Operations has lead to a significant change in our approach to future operations.

2. The Canadian Forces, and specifically the Army, has had a great deal of experience sustaining our forces in operations around the world. Beginning with the Korean War 1950 to 1954 and the first United Nations Emergency Force (UNEF 1) in the Sinai Desert in 1956, Canada has had a history of nearly fifty years and thirty-five missions supporting world peace through military operations under the auspices of the United Nations. The Canadian Forces has gained a reputation for providing a very high level of sustainment for our soldiers when they were deployed on these operations. Canada has had a great deal of experience deploying our forces and providing the sustainment which is needed while they carry out their operations.

CONTINUUM OF OPERATIONS

3. By maintaining a well-trained combat capable force the Army is able to meet its commitments at any level of the spectrum of conflict. Army operations during the past fifty years have been predominantly Peace

Support Operations (PSO) under the auspices of the United Nations or NATO. At home, the Army has conducted domestic operations in support of the provincial governments, the Olympics and in 1970 as a response to the Front de Liberation du Quebec (FLQ) activities which lead to the declaration of the War Measures Act by Prime Minister Trudeau. The 1991 Gulf War and the 1996 Stabilization Force in Bosnia-Hertzegovina are clear examples that the fall of the Soviet Union has not led to greater peace; the opposite is true. The future is likely to require more frequent, rapidly deployed forces as part of coalitions to maintain world peace.

4. Based on the premise that well-trained combat capable forces can conduct any operations within the spectrum of conflict, this manual focuses almost exclusively on the sustainment of combat operations. Certain sections will discuss some of the differences with PSO or domestic operations for information purposes only.

MANOEUVRE WARFARE

5. Manoeuvre warfare seeks to attack the enemy by shattering his moral and physical cohesion. It strikes a balance between the use of physical destruction and moral coercion, emphasizing that it is preferable to win without engaging in combat, if at all possible. The aim is to attack the enemy's will to fight. This is achieved through a series of rapid, violent and unexpected actions that create a turbulent and rapidly deteriorating situation with which the enemy cannot cope. Attacks are directed against those areas that would have the largest impact on the enemy's moral component – particularly his willpower, his military plans, his ability to manoeuvre, his command and control and morale. These actions are integrated to seize and maintain the initiative, outpace the enemy and keep him off balance. The approaches to attacking the enemy's cohesion include **pre-emption**, **dislocation** and **disruption**.[1]

6. A recent example of the manoeuvrist approach to combat was Operation DESERT STORM in which General Norman Schwarzkopf's forces conducted a 100 hour operation following almost six months of build-up and an air campaign designed to break the will of the Iraqi forces.

---

[1] **B-GL-300-001/FP-000** ***Conduct of Land Operations – Operational Level Doctrine for the Army*****, p. 2-3.**

The testament to success is the very low number of casualties experienced by the US/Saudi Arabia led coalition forces.

7. It is equally important in manoeuvre warfare to ensure the cohesion of our own force. This cohesion reflects the unity of effort. It includes the personal influence of the commander, a well stated intent focusing on the desired end state, the motivation and esprit de corps of the soldiers and the physical components necessary to integrate and apply **combat power**. To maintain cohesion, the sustainment effort must ensure the commander retains the initiative and freedom of action required for him to apply combat power and fight on his terms, not the enemy's terms. This is achieved through the uninterrupted provision of service support required for the commander to fix or strike the enemy when and where he wishes. Freedom of action is vital to our commander. Therefore, our sustainment capability must enhance the combat effort. As the enemy will be focusing on attempting to dislocate or disrupt our ability to sustain our operations, sufficient care must be given to prevent this from happening. Sustainment must never be allowed to become a critical vulnerability.

8. Manoeuvre warfare is most of all, a state of mind. Commanders think and react faster than their enemy in order to mass friendly strengths against opposition weaknesses. Where possible existing weak points are exploited or failing that, they must be created. Enemy strength is avoided and combat power is targeted to strike at his critical assets such as headquarters, rear areas, reserve forces, and lines of communications.[2] This does not mean that attrition will never be used in warfighting. At times attrition may not only be unavoidable, it may be desirable. It will depend upon the commander's intent for battle.

9. The acceptance of manoeuvre warfare, as a warfighting philosophy, has also influenced the sustainment doctrine. Forward combat formations must be highly mobile, light and lethal. Units, which provide support to combat formations, such as close support service battalions and field ambulances, must be equipped and manned to possess the same level of mobility and protection. Therefore, large stock holdings are no longer acceptable. Rather, elements will have adequate initial holdings of supplies and will receive sustainment stocks on a continuous basis. Flexibility must be maintained through better control and visibility of the assets within the

---

[2] **B-GL-300-002/FP-000** ***Land Force, Tactical Level Doctrine for the Canadian Army*****, Chapter 1.**

sustainment system. Current levels of automation and asset tracking will have the impact of reducing contingency stocks throughout the Combat Zone, as will development of control systems which will allow delivery of commodities from the port or airhead directly to the user. Mission command techniques will give combat service support (CSS) commanders and staffs more flexibility in supporting their commander's plan. Participating within coalitions implies that there will be numerous other methods of providing support to the operation.

COMBAT POWER

10. Combat power is the total means of destruction or disruptive force that a military organization can apply against its enemy at a given time. Combat power is applied through an inherent requirement to find the enemy in combination with the two dynamic forces of fixing and striking. Combat power is generated through the integration of several elements called **combat functions**. The Army defines six combat functions: **command**, **manoeuvre**, **information operations**, **firepower**, **protection** and **sustainment**. Figure 1-1 is a model showing the components of combat power.

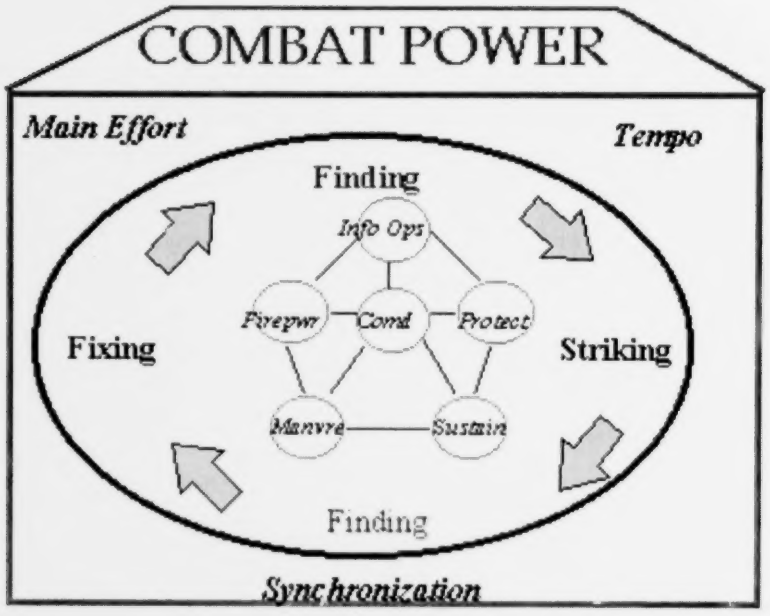

Figure 1 - 1 Combat Power

11. The desired effect is to take the potential of the force, the resources and the opportunities that arise and build a capability that as a whole is superior to the sum of its parts. The integration and co-ordination of combat activities are used to produce violent, synchronized action at the decisive place and time to defeat the enemy. Combat power is further enhanced by the control of tempo, designation of a main effort and synchronization.[3].

12. Tactical operations occur within an area called the Area of Operations (AO). It includes the complete width and depth of the friendly and enemy tactical deployment as well as any approaches to it. The commander's operations are divided into three areas within the AO: deep, close and rear operations. Operations in all three areas can be expected simultaneously and the commander must have envisioned the likely events in each of these to effectively defeat the enemy. Rear operations refer to the enemy's activities in our rear area aimed at disrupting our commander's ability to manoeuvre reserve elements or to conduct sustainment activities. Rear operations are of prime importance as they impact on the CSS freedom of movement and ability to support the deep and close operations that will be happening concurrently. Commanders will assign responsibility for co-ordination of each of the three areas. The responsibility for the rear operations could be, but is not always, the senior CSS commander. All CSS organizations participate in the rear operations security plan.

INTEGRATION OF THE COMBAT FUNCTIONS

13. The six combat functions are inseparable in the planning and conduct of operations. The developments in one function invariably impact on each of the other functions. It is imperative that commanders and staffs fully understand the ramifications of this and integrate the staffs in the planning process to ensure that the strengths and weaknesses associated with a particular plan are fully developed. Only in this way is it possible to make the whole stronger than the sum of the parts.

14. Sustainment activities must always be integrated into the other combat functions. Command is just as important within the CSS organizations as in the combat elements. Information operations must

---

[3] **B-GL-300-001/FP-000** *Conduct of Land Operations – Operational Level Doctrine for the Army* p 2-6.

provide adequate information to effectively conduct the rear battle. Manoeuvre, from a CSS sense, means that the CSS organizations must know where the supported units will be, how they will manoeuvre and then ensure that the CSS elements are capable of supporting the manoeuvre. Firepower plans must include an assessment of the problem of sustaining the rates of fire, the manoeuvre of the firepower units and integration of the fire support required in rear operations. Protection of CSS units, which are prime targets for the enemy, is as necessary as protection of the manoeuvre force since the destruction of the CSS elements by the enemy will probably ensure that the commander is incapable of success. As can be seen each combat function is linked to sustainment. It is possible to complete the same kind of analysis with the conclusion that, as shown in Figure 1-2, each combat function is linked to the others.

15. In keeping with the manoeuvre theory, CSS commanders must have the foresight to keep one step ahead of the battle. Given a clear intent by the commander, the CSS commanders and staffs must develop innovative and flexible plans that will match his intent. Rigid and inflexible support relationships are doomed to failure on the modern, non-linear battlefield. Reserves of stocks are necessary of course but it is the innovative use or positioning of these that will determine their utility. The ability to foresee potential problems and issue direction to counter the effects before the commander is even aware of the situation is the mark of a creative CSS staff. The failure of the sustainment activities may not lead to the loss of the current battle, but it surely will result in failure at some time in the future unless corrected immediately.

SUSTAINMENT

16. The sustainment of Army units and formations in operations can only be accomplished by including sufficient CSS organizations within the force structure at all levels of operations to provide the service support required. The provision of the service support is based on four systems that have been developed within the Canadian Forces and the Army, the **Replenishment System**, the **Land Equipment Management System (LEMS)**, the **Personnel Support Services (PSS) System** and the **Health Services Support (HSS) System**. It should be noted that these systems begin with the strategic level and transition across the operational and tactical level of operations to provide the CSS required by units in combat. In Chapter 2, the four systems are introduced and a detailed description is provided in Chapters 3 to 6. The range of services in the sustainment

combat function is called **service support**, which applies, across the strategic, operational and tactical levels of operations. Within the combat zone, the term **Combat Service Support (CSS)** is used to describe both the sustainment operations and the units which provide them.

17. **Sustainment Engineering** is the engineering support required in terms of ports, airports, rail, roads and infrastructure that permits the service support elements to conduct their missions. While it is not a system that provides direct service support in sustaining the force, it is a vital contribution to the service support organizations. Sustainment engineering will be introduced in Chapter 2 and fully described in Chapter 7.

18. Figure 1-2 shows the relationship of the four systems and sustainment engineering as they relate to the combat function of sustainment.

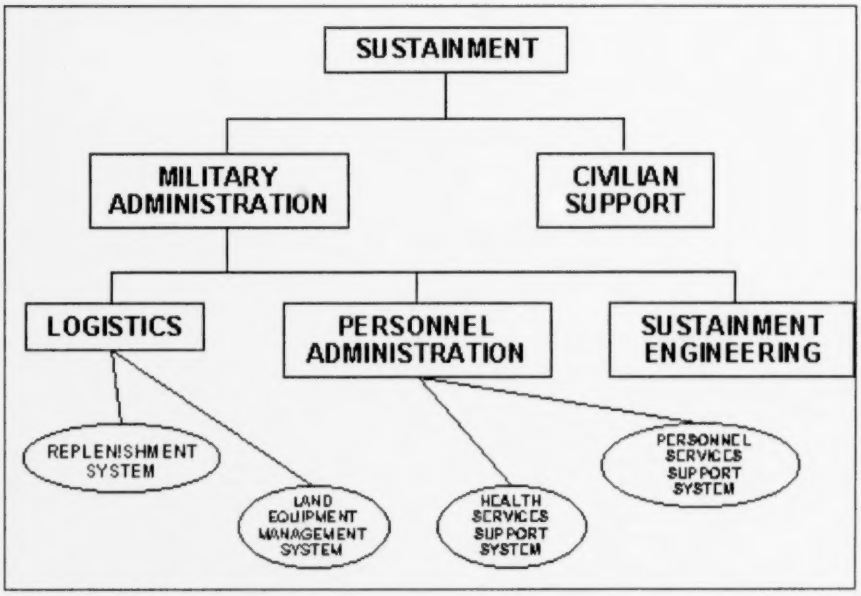

Figure 1 - 2 Sustainment

THE THREAT TO THE SUSTAINMENT SYSTEM

19. Since the end of the Cold War, there has been, and will continue to be, deployments to locations and environments that cannot be predicted. The Army requires the adaptability to react to various contingencies and to face unforeseen threats. This calls for increased flexibility in doctrine and

training because there is no longer the luxury of basing our actions on a known adversary. The Army must be prepared to conduct combat and non-combat operations in a variety of locations and to deal with varying threats along the spectrum of conflict from warfighting to operations other than war (OOTW). This spectrum of conflict presents a paradox to the Army in that we must continue to posture our forces to fight a war, while realizing that most future conflicts will be limited in their intensity. By extension, sustainment units and formations and headquarters must also structure themselves to provide support along the complete continuum of operations.

20. The threat to friendly sustainment units and formations in operations can be substantial and multi-faceted. The threat covers the spectrum from nuclear, chemical and biological attack and conventional warfare at one extreme to intelligence collection, sabotage and subversion at the other. For this reason, all personnel involved in sustainment must be conversant with the threat and the measures designed to counter it, regardless of their physical location in the area of operations.

21. As with any other type of military activity, the nature and degree of the threat will vary depending on the type of operation being conducted, the disposition and capabilities of the friendly forces, the terrain, the climatic conditions, and the enemy's disposition, capabilities and intentions.

22. Targets for attack in the rear area include command and control centres, communications networks, supply facilities, ports, airfields, air defence sites, reserve echelons, and nuclear/chemical delivery systems and storage areas. The type of attack against sustainment units will vary depending on the unit's proximity to the battle, the enemy's plans and the friendly force capabilities. The various forms of attack open to the enemy may include nuclear, biological and chemical (NBC) attack, electronic attack, air attack and ground attack.

23. A ground attack may take the form of a direct or indirect attack or a combination of the two, based mainly on the delivery means. The indirect ground attack encompasses the enemy's long range fires (surface to surface missiles and artillery including guns, howitzers, mortars and multiple rocket launchers). Direct ground attacks may be carried out either by aerial delivery of land forces (airborne or heliborne) or by ground-based manoeuvre forces. The strength of the attacking forces may range in size from section (sympathizers, resistance organizations, short and long range reconnaissance patrols) to army (as an Operational Manoeuvre Group for a front).

24. Sustainment installations and units are attractive targets for attack because of their limited combat power, vulnerability and significant importance to the sustainment of the fighting forces. There are, however, a variety of passive countermeasures which can substantially reduce the threat:

a. **Intelligence**. The value of timely, intelligence cannot be overstated. Normally, a thorough appreciation of the enemy's capabilities, intentions and activities, combined with prompt dissemination of this information, will provide sufficient lead-time to permit the implementation of increased defensive precautions or redeployment to a less threatened area.

b. **Vigilance**. An awareness of the threat and constant vigilance by members of administrative installations and units will virtually eliminate an enemy's opportunity to achieve tactical surprise and thus reduce his chances for success in an attack.

c. **Camouflage, Concealment and Dispersion**. If the enemy has difficulty locating a unit and that unit is properly dispersed and protected, it logically follows that the effectiveness of any enemy attack is degraded. Therefore, all administrative units, regardless of size, must ensure that their locations and activities are concealed to the fullest extent. They must also ensure that all-standard tactical security and defensive measures are implemented and followed.

d. **NBC Defence Measures.** With the exception of a direct hit by a weapon of mass destruction, the implementation of, and adherence to, approved NBC defence measures will significantly reduce the possibility of lethal or incapacitating contamination. These measures include individual and collective training in NBC drills (including warning, personal/collective protection and decontamination), detection and monitoring, and adoption of the appropriate, passive defence measures.

e. **Electronic Counter-countermeasures**. It is very unlikely that the threat of electronic attack can be

eliminated in the foreseeable future. However, proper application of standard electronic and communications security procedures together with the use of alternate means of communication (such as liaison officers, runners and land line) and a high degree of operator proficiency will degrade the enemy's ability to disrupt, jam and deceive friendly administrative nets.

25. All of the above defence measures are passive in nature. The requirement continues to exist for all sustainment installations and units to be equipped and trained to defend themselves against direct enemy attack in the event that passive defence measures alone fail to deter the enemy. In the event of ground attack the aim of friendly units is to defend the area until outside assistance can be obtained or to extract vehicles and equipment to an alternate location. In establishing a defence plan for the Brigade Support Area, units or clusters should include the following:

a. a reconnaissance and estimate by the commander;

b. alarm systems;

c. the composition of the Quick Reaction Force (QRF);

d. action by personnel not committed as sentries or to the QRF;

e. the number and nature of patrols and sentries required; and

f. countermeasures to restore the local situation.

SUSTAINMENT TERMINOLOGY

26. The combat function Sustainment is named after the principle of sustainability. "Sustainability is the requirement for a military force to maintain its operational capability for the duration required to achieve its objectives. It is therefore Canada's responsibility to sustain its Army. Sustainment consists of the continued supply of consumables and the replacement of combat losses and non-combat attrition of equipment and

personnel."[4] Sustainment is achieved by a combination of **military administration** and **civilian support**.

27. Military administration includes **logistics** and **personnel administration**. Logistics is the science of planning and carrying out of the movement and maintenance of forces.[5] Personnel administration comprises those activities, which contribute to the moral cohesion of our forces through effective personnel management, personnel services and health support services.

28. Civilian support to Army operations includes support provided by host nations, other government departments, civilian agencies and contractors. **Host nation support** can be instrumental in arranging for the provision of some commodities or services from the local economy, thus reducing the requirement to provide these from Canada. Our forces often work closely with personnel from other government departments, such as embassies, consulates and the Department of Foreign Affairs Industry and Trade. In recent operations the presence of civilian agencies such as the numerous aid agencies has led to the co-ordination of requirements. The introduction of civilian contractors in the vicinity of the area of operations, such as was prevalent during the Gulf War, has increased the level of technical support to many of the fighting systems.

29. Coalition forces, by their very nature, allow for a sharing of responsibilities and may provide better overall support to the force as a whole. Most coalitions begin by reaching an agreement on the force structure as well as the support arrangements. The **Lead Nation,** usually the largest contributor to the coalition force, provides the framework organizational structure and often will provide some of the common support to all coalition members. Our doctrinal corps model, X Allied Corps, designates the U.S. as the Lead Nation. When a nation agrees to provide certain support to all coalition members, it is termed **sole nation support**. Common commodities such as fuel or fresh rations are examples of what could be provided by a sole nation provider.

---

[4] **B-GL-300-003/FP-000** ***Command*****, p 45.**

[5] **APP-6 (U)** ***NATO Glossary of Terms and Definitions*** fully defines logistics as, the science of planning and carrying out of the movement and maintenance of forces. In its most comprehensive sense, it includes those aspects of military operations, which deal with design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of material.

SUSTAINMENT

30. Sustainment of Army elements in operations will always remains a Canadian responsibility. Agreements with lead nations, sole nation providers, other government departments, civilian agencies and contractors are methods of providing some of the support. Most of the sustainment effort will continue to be based on continued support from our installations in Canada.

SUMMARY

31. Sustainment, which is the continued supply of consumables, the repair or replacement of both combat losses and the non-combat attrition of equipment and personnel, is critical to successful operations. It is the physical means by which the commander will maintain tempo of operations at the desired level to achieve success. Sustainment must be effectively integrated with each of the other combat functions if operations are to be successful.

CHAPTER 2
THE SUSTAINMENT CONCEPT

INTRODUCTION

INTRODUCTION

FUNDAMENTALS

SUSTAINMENT TENETS

SUSTAINMENT FACTORS

BATTLEFIELD LAYOUT

THE SUSTAINMENT CONCEPT

THE SYSTEMS

1. Our military forces whether operating in Canada or around the world must be logistically supported. It is inconceivable to deploy a force of any size without a thorough consideration of how the force will be replenished, how its casualties will be evacuated and treated or how its vehicles and fighting equipment will be maintained, repaired, and replaced. A force which is not adequately supported, is analogous to a candle burning in a sealed jar. It will operate effectively for only a brief period beyond which point it expires.

2. Sustainment activities permeate all levels of conflict. Sustainment is a continuous, forward-focussed process which projects materiel and services from Canada, through theatre operational level support structures, to the fighting soldier on the forward edge of the battle area (FEBA). In other words, it is the single, common process which connects the resource capability of a nation to its fighting force. Like all combat functions, sustainment is made up of a number of complementary activities ranging from support from the Canadian industrial base, through to the tactical combat service support (CSS) provided by army units at the fighting end of the lines of communications (L of C).

3. Army sustainment reflects a careful consideration of fundamentals and the contemporary threat to sustainment systems. Adapting proven support concepts to the current threat yields a uniquely Canadian approach to sustainment complete with salient tenets, four distinguishable systems and three distinct levels of sustainment activity.

FUNDAMENTALS

4. The fundamentals of sustainment have evolved through experience. These fundamentals should not be viewed as rigid laws but as guidelines for the planning and conduct of sustainment operations. They provide the basis upon which to measure the soundness of a sustainment plan. The fundamentals are as explained below:

a. **Foresight** is composed of two aspects: planning and execution. Planning requires lead-time and therefore the planner must be made aware of operational intentions as early as possible. Foresight will minimize the support limitations to a commander's plan. The execution of a plan seldom goes as forecasted; therefore a swift reaction capability is required to meet the changes to the tactical plan. Foresight is required to ensure the existence of suitable reserves and the flexibility to make those reserves available when and where required.

b. **Economy** of scarce sustainment resources is best accomplished by centralizing the control of these resources. The tendency toward excessive holdings must be avoided so that the unnecessary demanding, transport, storage and even abandoning of resources, does not occur. The consequences of minimum holdings will quickly become apparent but the waste in manpower, materiel and the loss of mobility caused by excessive holdings is not so obvious.

c. **Flexibility** in sustainment should begin with flexibility of mind. Preconceived notions of ideal solutions or unimaginative textbook solutions do not result in the flexible support required on the battlefield. Flexibility means the ability to conform to the tactical plan regardless of the changes encountered.

d. **Simplicity** facilitates flexibility whereas complexity reduces flexibility. A sound CSS plan strives for simplicity. Simple, yet flexible plans will withstand shock and have a greater chance of success. When complex plans are required, simplicity will be achieved if those plans are based on a clear concept of what is

required, strong command and control, sound doctrine and proven standing operating procedures (SOP's).

e. **Co-operation** among all staffs and services will greatly enhance the provision of sustainment of the force. Units must feel confident that their support will not fail them in an emergency. Similarly, CSS staff must feel confident that they will not be asked to satisfy unreasonable demands. It is the responsibility of commanders and staff at all levels to ensure this close co-operation is planned and co-ordinated. Co-operation is particularly important in combined and joint operations where national or service interests have the potential to undermine relationships.

f. **Self-sufficiency** means that a force initially has at its disposal the essential resources for combat, for a period of time determined by the higher commander. Self-sufficiency is necessary because of the ever-increasing consumption rates and the complexity of the battlefield. Increased consumption rates lead to increased basic and maintenance loads which in turn leads to a larger supporting element. Commanders must be able to determine what is required for a specific operation and then leave unnecessary combat service support resources in the rear area. The fundamental of self-sufficiency is applicable at all levels of command. Adherence to this fundamental will serve to remind the commander that he is not necessarily bound by any specific scale but rather should have at his disposal the minimum resources required to accomplish his mission.

5. Achieving the correct balance in the application of these fundamentals call for the use of wise judgement based on experience. It is here that the commander's leadership and direction play their part. The staff is charged with the development of innovative and potentially risk-oriented courses of action for the commander. The commander alone can decide how much risk is acceptable.

SUSTAINMENT TENETS

6. The Canadian sustainment concept is the resulting product of a consideration of modern threat and fundamentals. It is designed to provide the required CSS to combat formations and is based on the following tenets:

a. **A single, seamless support system** (from Canada to the soldier).

b. Forces will be **forward supported** as much as possible.

c. Sustainment must utilize the principle of **augmentation forward.**

d. Sustainment must **support** not hinder the commanders operational plan.

e. Sustainment must be **forward thinking** to ensure maximum flexibility for the dynamic battlefield.

f. Canadian formations working within a coalition force will always **require a pipeline for Canadian unique items** provided from Canada regardless of the structure of the supporting organization.

SUSTAINMENT FACTORS

7. In determining the sustainment requirements for an operation five fundamental factors must be assessed. Known by the acronym **4DR**, the factors are destination, demand, distance, duration and risk. Note that these factors equally apply to personnel, services and commodities within the sustainment combat function.

a. **Destination**. The destination sets the overall environment for sustaining the operation. Determining where the support is to be provided will lead to development of the lines of communication (L of Cs), distances to be travelled, routes and control measures. When matched with the transportation assets it is possible to assess the feasibility of successful operations.

b. **Demand**. Demand is the quantity and pattern of consumption and comes directly from the commander's intent. Demand is composed of steady state demand, cyclical demand and surge demand. Steady state demand reflects the continuous usage of commodities, such as rations, which can be accurately predicted and change little during various stages of operations. Cyclical demand represents changes in consumption due to changing climate or posture, such as fuel consumption. Surge consumption is driven by the pattern of operations, either ours or the enemy's, and requires rapid action as it is usually difficult to predict. A dumping program in preparations for a specific operation is one example of a surge demand.

c. **Distance**. The distance between the supported forces and the supporting forces is important in the development of the sustainment plan. When distances become extended, CSS units begin to employ intermediate steps such as creating forward commodity points and attaching elements of the supporting units to formations or units, to ensure that the CSS is available to the tactical commander. Distance determines the time in transit and is a factor in the number of tasks that can be performed within a given time.

d. **Duration**. The length of the operation and the rate of consumption will determine the overall sustainment problem. The capability of the CSS elements to maintain a level of support will drive the overall capability. For example, it may be possible to use transport resources for a 24 hour period once, but for longer duration operations one may only count on these resources for an average of 12 hours per day. For long missions it may be required to rotate or replace personnel and equipment. Our history of unit rotations in supporting UN operations is an example.

e. **Risk**. The level of risk to sustainment operations must be assessed. If the enemy is capable of severing the L of C or destroying forward stocks, the commander will have to evaluate whether additional stocks and protection will be necessary. This will usually drive the development of

acceptable options for supporting the commander's plan. As the operation unfolds the level of risk will change and the sustainment plan will need to be adjusted to reflect the new situation. This requires sustainment planners to be flexible and innovative in developing solutions to counter the risk to the operations.

BATTLEFIELD LAYOUT

8. To gain a clear understanding of how the sustainment process supports the activities within an operational theatre, it is necessary to describe a typical theatre of operations layout. Figure 2-1 graphically depicts the major components of a developed theatre. It is recognised that the modern battlefield will not necessarily be as linear and orderly as the figure depicts. It will, most probably, look like the Non-Contiguous battlefield shown in Figure 2-2. The remainder of this manual will use the style of the linear battlefield for ease of learning and clarity.

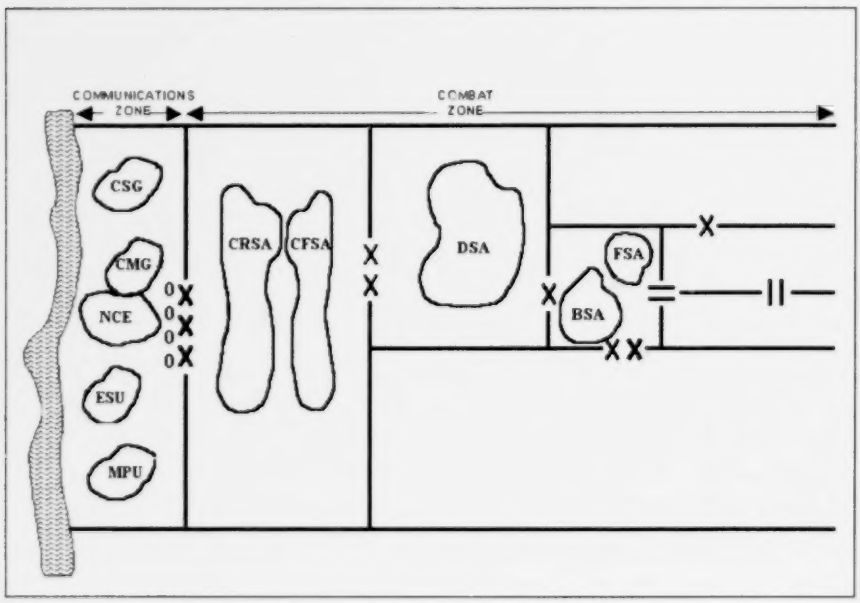

Figure 2 - 1 Battlefield Layout

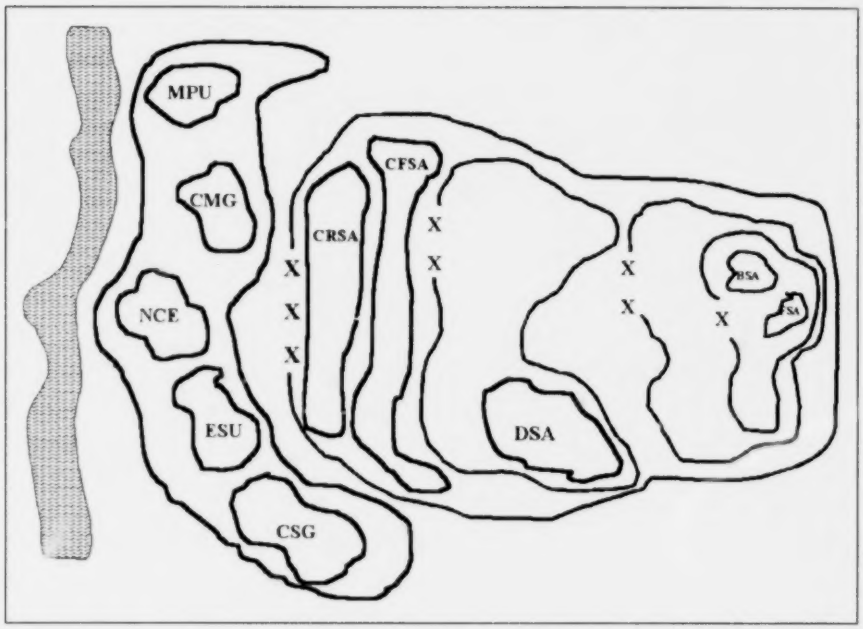

Figure 2 - 2 Non-Contiguous Battlefield Layout

9. **The Communications Zone (COMM Z).** The COMM Z is the geographical area that serves as a link between a combat force and the national support base. It consists of a myriad of long-term sustainment capabilities, which are required by the forces in the combat zone (CZ) but not immediately required for the operation. From a Canadian perspective, the COMM Z will include a National Command Element (NCE) and a Theatre Logistics Base (TLB) comprised of elements of the Canadian Support Group (CSG), the Canadian Medical Group (CMG), the Engineer Support Unit (ESU) and the Military Police Unit (MPU). The COMM Z marks the end of the strategic level administration and the beginning of the operational level sustainment. All efforts to move material and services forward from the TLB fall into the sphere of operational level sustainment. The elements that comprise the Comm Z are as follows:

a. **The National Command Element (NCE).** The NCE is commanded by the National Commander, who will be appointed by the Chief of Defence Staff (CDS). He has the NCE HQ and a complete joint staff at his disposal to command, control and sustain the deployed Canadian formation.

b. **The Canadian Support Group (CSG).** The CSG provides operational level sustainment to the Canadian formation as a whole. The CSG will have operational level responsibilities for transportation, supply, maintenance and finance. In the case of the Army, select GS capabilities within the CSG are also projected forward to the tactical level in support of the brigade group/mechanised division. In our current Electronic Battle Box, these capabilities are found in the Forward Mobile Support Battalions (FMSB) of the CSG. In a X Allied Corps scenario, the CSG will be responsible for using established linkages with the US COSCOM for the provision of combat supplies to the tactical level. There will be a command and control relationship between the forward elements of the CSG and the COSCOM to enable a Canadian formation to draw common classes of supply from corps resources and Canadian-unique material from the CSG in a seamless fashion.

c. **The Canadian Medical Group (CMG).** The CMG provides operational level (short-term) health care to the Canadian formation as a whole, as well as minimal care, and evacuation health services to the other Canadian units in the COMM Z. It consists of three field hospitals and a dental company. The CMG field hospitals each include a surgical centre, a holding company and two forward medical companies. The forward medical companies can be projected forward to the tactical level to form Forward Surgical Centres (FSCs). Normal operation of the CMG would consist of two field hospitals established in the COMM Z and the third hospital on the move or in the process of setting up to best sustain the tactical level.

d. **The Engineer Support Unit (ESU).** The ESU provides sustainment engineering services to the COMM Z elements, holds certain types of engineering equipment required for combat operations (e.g. bridging) and provides specialist and technical engineer support to Canadian Engineers at the tactical level. It is composed of construction, field equipment, geometrics, resources and fire fighting elements and is capable of the following tasks: improving and building infrastructure and facilities;

provision of engineer labour (including bridge construction); excavation; road construction and repair; electrical power distribution; explosive ordnance disposal; fire fighting and the provision of water.

e. **The Military Police Unit (MPU).** The MPU provides operational level MP services to the Canadian formation by operating detention facilities. It also conducts traffic control in the COMM Z. The MPU is composed of two general support companies and a specialised company, which is responsible for close personal protection, security services, special operations assistance to operations security and investigations.

10. **The Combat Zone (CZ).** The area forward of the formation rear boundary is defined as the combat zone. In Canadian terms this could strictly apply to the rear boundary of the brigade group or the mechanised division. However, when working in an allied corps framework, the corps rear boundary is the dividing line between the COMM Z and the CZ. In order to describe the components comprehensively, a complete corps layout will be discussed.

a. **The Corps Support Area (CSA).** The CSA is the geographical area which extends from the rear boundary of the corps to the rear boundaries of its divisions. The CSA is normally divided into a Corps Forward Support Area (CFSA) and a Corps Rear Support Area (CRSA). The Corps Support Command (COSCOM) is the largest tactical CSS formation and it does not exist as a Canadian organization. Canadian units must, however, be able to "plug into" the COSCOM and the corresponding Engineer and Military Police formations of a lead nation in a coalition operation. The COSCOM mission is to co-ordinate logistics elements in support of corps forces which would include the Canadian formation in a X Allied Corps scenario. The size of the COSCOM is mission dependent, relying on such factors as the size of the area of operations, the number of soldiers to be supported, the number and types of weapon systems which require support and the tonnage of supplies which must be moved through the replenishment system. Under normal circumstances the COSCOM could consist of a

formation-sized headquarters element, functional control centres, a medical brigade and a variable number of corps support battalions. The Canadian doctrine for the COSCOM is the US Army publication FM 63-3.

b. **The Divisional Support Area (DSA).** This is the area forward of the divisional rear boundary from which the divisional CSS elements sustain the division. The DSA forms part of the rear area of the division and is normally located to the rear of the forward brigades. CSS units found in the DSA are the Divisional Services Group (DISGP) and the Division Medical Battalion.

c. **The Brigade Support Area (BSA).** The BSA is the area to the rear of the forward brigade units. It is from the BSA that the CSS assets of the brigade provide CS to the manoeuvre forces of the brigade. The BSA may include the B echelons of the manoeuvre units and may itself be included inside the DSA of the division. The CSS units located in the BSA include the CS Service Battalion and the Field Ambulance.

d. **The Forward Support Area (FSA).** In some tactical situations such as delaying operations, it will make good sense to project some CSS assets forward of the BSA in order to ensure uninterrupted support. The CSS units, which occupy the FSA are task organized, according to the demands of the tactical situation. Capabilities, which could be found in the FSA include specific replenishment tasks, in situ repair, recovery and advanced surgery for medical casualties. To effect these capabilities elements of the CS Service Battalion and Field Ambulance are projected forward into a highly mobile element.

THE SUSTAINMENT CONCEPT

11. Sustainment systems are interrelated and therefore require effective command, control and co-ordination to provide effective support. It is imperative to take into consideration the relationship of all systems when developing a concept of operations. Even though the four systems of sustainment have individual characteristics and functions, they all conform

to the sustainment tenets and are capable of expanding the commanders' range of operation possibilities.

12. The Canadian doctrine now distinguishes between three levels of operations: strategic, operational and tactical. The sustainment tenets are entrenched in each level. Although a unified sustainment process extends through all three of these levels it is crucial to note that the focus of sustainment activities at each level is quite different. Each subordinate level draws from the higher level for its support. The success of the sustainment system is dependent on the successful integration of these three levels. Further, it should be noted that the term "sustainment" as the Army defines it is not commonly used in the joint operations lexicon. Beyond the tactical level, the term administration is used to describe the process through the strategic and operational levels. At the tactical level, the term CSS is used to describe sustainment activities.

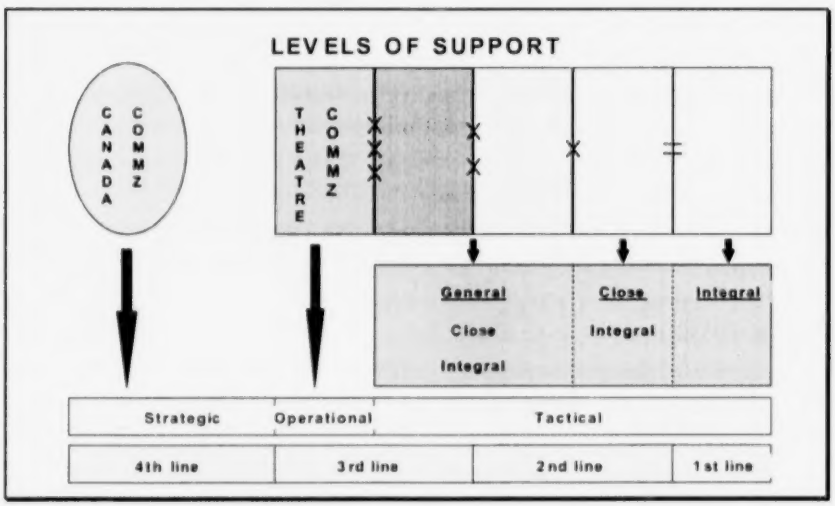

Figure 2 - 3 Levels of Support[6]

---

[6] Levels of support were formally defined as first through fourth lines of support. Line terminology is now replaced by strategic, operational and tactical levels of support. This diagram illustrates the new levels of sustainment as they compare to the old system of lines of support. While the four lines of support are still commonly used throughout the Army, levels reflect the current sustainment doctrine.

a. **Strategic Level Sustainment**. In the broadest sense, strategy involves the employment of the nation's resources to achieve the objectives determined to be in the national interest. Logically, the sustainment process at the strategic level is geared to support these national objectives. This level includes such activities as weapon and equipment design, construction of permanent bases and support facilities, the mobilisation and movement of forces and materiel from Canada to the port of disembarkation (POD) in theatre. In short, all the activities, which contribute to the resource pool of the theatre logistic base (TLB) are strategic. Projection of resources beyond the POD in theatre, fall into the sphere of the operational level.

b. **Operational Level Sustainment.** At the operational level, the military activity is focussed on the achievement of strategic objectives through the conduct of campaigns and major operations in the theatre of operations. Operational level administration supports these campaigns and major operations. From a sustainment perspective, the operational level begins at the POD and extends forward to the rear boundary of the supported Canadian formation (either the brigade group or the mechanised division) thereby linking the strategic level administrative effort with the tactical level. Operational level administration involves projection of resources provided from the strategic level as well as the co-ordination of support from civilian contracts, host nations and allied military administrations. It encompasses all of the support activities, which are beyond the scope of tactical level CSS and augments forward with these resources when required.

c. **Tactical Level Sustainment/Combat Service Support (CSS).** At the tactical level, battles, engagements and other actions are planned and executed to accomplish military objectives established by the operational level commander. CSS is concerned with maintaining forces in combat and it accomplishes this through the actual performance of sustainment tasks of replenishment, health services, land equipment management and personnel

administration. CSS is categorized into general, close and integral support.

(1) **General Support (GS).** The support provided to the force as a whole and not to any particular sub-division thereof. Within the combat zone, it is the most centralized support relationship and it is relatively static in nature, comprising time consuming or complex functions. CSS units usually provide this level of support to the division or the brigade group from a centralised location. It includes such sustainment activities as wheeled vehicle repair, formation level dumping, general and technical supply, laundry, bath and decontamination services, medical treatment and evacuation, and personnel support services. GS units have the ability to reinforce CS units.

(2) **Close Support (CS).** The intimate support provided to the formation commander to deal with tasks of immediate concern to his operations. The service is usually provided within a day by formation CSS units. CSS units providing close support are highly mobile. This support includes delivery of combat supplies, repair and recovery of armoured vehicles, and health services support.

(3) **Integral Support**. The immediate, organic support provided to a unit commanding officer to deal with tasks of immediate concern to his operations. Integral support organizations can be found within one of three common locations within each area of operations as shown in Figure 2-4 and as follows:

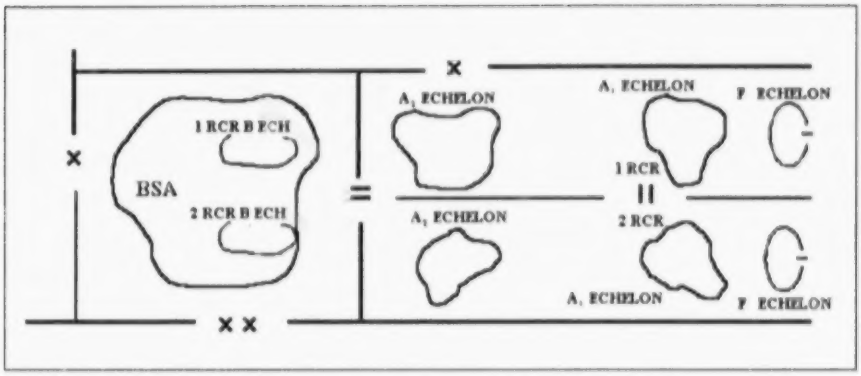

Figure 2 - 4 The Echelon System

(a) **F Echelon**. The soldiers, vehicles and equipment required by the unit to fight the immediate battle.

(b) **A Echelon**. The soldiers, vehicles and equipment, which must be readily available to support the fighting troops at all times during the battle. Armoured and other heavily mechanised units normally split this echelon into an A1 and an A2 echelon. The A1 echelon provides moment-to-moment sustainment. The heavier A2 echelon stands prepared to reinforce the A1 echelon forward but its main role is the daily sustainment demanded by the F echelon.

(c) **B Echelon.** The soldiers, vehicles and equipment which are not required in the F or A echelons during the battle but which are intrinsic in the routine administration of the fighting unit.

THE SYSTEMS

13. The sustainment combat function is made up of the following four systems:

a. The **Replenishment System** provides the field force with the combat supplies, general and technical stores and material required to fight and win on the battlefield. Like all the sustainment systems, replenishment aims to ensure the commander's freedom of action is not constrained, giving him the widest selection of sustainable tactical choices to enhance manoeuvre.

b. The **Land Equipment Management System (LEMS)** maximizes combat available equipment to the commander through effective equipment management. The LEMS focuses on the rapid repair and maintenance or replacement of combat equipment. It provides life cycle management of the equipment, starting with the procurement and distribution at the national level and the support of the equipment at the operational and tactical level. LEMS manages the replacement equipment holdings, repair parts and tools, and test equipment.

c. The **Personnel Support Services (PSS) System** is designed to maximize the combat effectiveness of personnel. The PSS system consists of two major components: personnel management and personnel services. The PSS system plays an important role in the cohesion of a fighting force. By providing the necessities of life, effective personnel support services frees the commander and soldiers from the preoccupation with their personal needs. This allows them to focus their physical and mental energies on their military duties.

d. The **Health Services Support (HSS) System** is a single, integrated system that reaches from the forward area of the CZ to Canada. The HSS system is designed to optimize the return to duty of the maximum number of trained combat soldiers, at the lowest possible level of support. The HSS system must enhance, not inhibit our operational designs by extending the operational limits as far as possible.

14. Sustainment engineering is an integral component of sustaining a force; it is not a system of sustainment but is only one of many engineering tasks performed by engineers on the battlefield. Sustainment engineering

involves the provision of engineer advice, technical expertise, resources and work other than the mobility, counter-mobility and survivability tasks provided to combat operations. It may be performed by a combination of engineer units, contractors and host nation support.

CHAPTER 3
THE REPLENISHMENT SYSTEM

ROLE

1. The role of the replenishment system is to provide the field force with the combat supplies, general, technical and defensive stores and material required to fight and win on the battlefield.

THE REPLENISHMENT SYSTEM

2. The replenishment system is the process by which combat supplies, defensive stores, repair parts and general and technical stores are provided to the fighting forces in the combat zone. The Replenishment system is based on the activities of transportation and supply. These complimentary activities exist at all levels to effect replenishment.

ROLE

THE REPLENISHMENT SYSTEM

TASKS

- Tactical Replenishment
- General Transport
- Material Management & Distribution
- Aerial Delivery
- Laundry Bath And Decontamination
- Postal
- Salvage/Rearward Delivery Of Material

SUMMARY

3. The replenishment system is a continuous, forward-focussed process, which is analogous to a wide-mouthed funnel. At the wide end of the replenishment system there is the Canadian strategic resource base, the Theatre Logistics Base (TLB) and different sources of supply ranging from Host Nation Support to Canadian industry. At the narrow end of the funnel is the CS replenishment element that delivers to a manoeuvre unit. Each successive level of the replenishment funnel becomes more sophisticated and specialized the further one moves back from the FEBA. Higher level replenishment elements support lower levels and where necessary, augment forward when tactical requirements dictate. In this fashion, the replenishment system provides for the seamless flow of material through the strategic and operational levels to the fighting soldier at the FEBA.

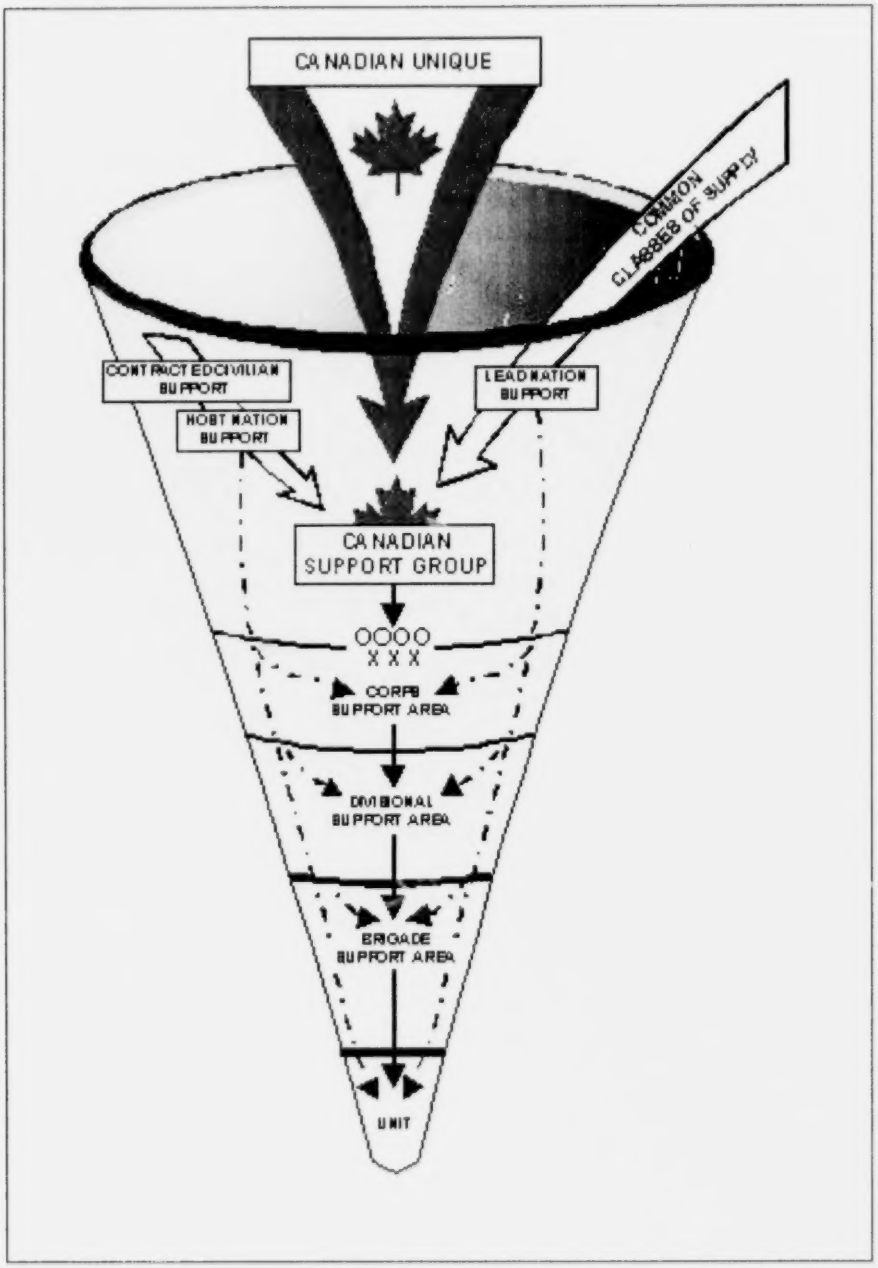

Figure 3 – 1 The Replenishment Funnel

4. **Stock Holding Policy**. Commanders must routinely assess the readiness of their forces from the perspective of combat supply holdings and adjust it as necessary. "How much to hold where," is one of the key challenges facing contemporary military replenishment; allied opinion on

this point is far from achieving consensus. The US Army has experimented with reducing unit holdings to zero and relied on "just in time delivery" and digital technology to support the demands of consumption. In the Army, despite the merits of total asset visibility, units will continue to carry a basic load spread out through its F, A1, A2 and B echelons while the formation will hold the maintenance load in CS units. The basic load equates to the scale of material carried by units to assure a limited degree of self-sufficiency. The basic load generally amounts to three days of combat supplies. It is calculated on an estimated daily usage basis. The size of the basic load can be altered by the commander. The maintenance load is the scale of material carried by formation CS units to provide self-sufficiency to the formation. It amounts to one day of combat supplies. Again, the volume of the maintenance load can be altered to suit the requirements of the commander's plan.

5. **Controlled Stores**. Certain items of stores and equipment are subjected to a special form of control because of their high operational significance or limited availability. These fall within one of two categories: controlled and rationed stores. Controlled stores are items of a high operational significance such as vehicles, weapons and major assemblies that require the release authority of the applicable formation headquarters operations staff. Rationed Stores are items in short supply such as canvas tents or hand tools, which require release authority from the supply staff at various levels of headquarters. The material management system provides for the tracking of controlled and rationed stores at all levels. It is the CSS staff at the formation headquarters who arrange for the release authority from the operations staff for a given controlled item when its level falls below a given accepted minimum. Items are added or deleted from the list with the concurrence of the operations staff. The number of items designated as controlled should be kept to a minimum; as while control ensures staff awareness of current holdings it also delays the actual issue to units. Unit demands for controlled stores are passed in the normal manner. When they are received by the CS unit, however they cannot be automatically satisfied. Rather, the demand is passed to the formation headquarters staff for release authority. Once release authority is granted, the CS unit will satisfy the demand. A limited range of controlled and rationed stores may be held at CS and GS units. In most cases, however, these controlled items are physically located in COMM Z supply organizations.

6. **Push and Pull Replenishment**. Material flows through the replenishment system based on one of two dynamics: automatic push or

demand pull. Push replenishment is the automatic issue of stores, normally combat supplies, based on a sustainment plan and operational requirements. Modern information systems enable push replenishment to be finely tailored by logistics staffs to meet actual consumption. Pull replenishment is the issue of stores and material as a result of unit demand. No matter how sophisticated the push technology becomes, the unexpected will always occur on the battlefield. This uncertainty is accentuated in the context of manoeuvre warfare. As a result, there will always be a requirement for supported units to demand items and services.

7. **Strategic Level Replenishment**. Strategic level replenishment involves the entire effort of the nation including the political and industrial complex, which allows for the production and projection of resources into the operational theatre. The NDHQ National Defence Logistics Control Centre (NDLCC) in conjunction with the sustainment members of the NDHQ Joint Staff are responsible for co-ordinating strategic replenishment for the Canadian Forces. It is a strategic responsibility to set the in theatre stock-holding policy. For example, the current strategic policy commits 90 days of stock to an operational theatre. This policy works on the 30/30/30 principle, which maintains 30 days of supply (30 DOS) at the operational level, 30 DOS en route to the theatre and 30 DOS being procured, manufactured and prepared for shipment in Canada.

8. **Operational Level Replenishment**. Operational level replenishment begins with the movement of material forward of the TLB and ends with the delivery of material to the tactical level. Our doctrine recognises two distinct pipelines in the replenishment system—one which is entirely Canadian and the other which consists of Lead/Host Nation support. In the case of the Canadian Division, the CSG replenishes the DISGP of the Canadian Division with Canadian-unique items. Common classes of supply such as rations and fuel will come from the Lead Nation supplier to the maximum extent practicable (such as the US COSCOM in the X Allied Corps model). In the deployment of an independent Brigade Group, the CSG has the dual role of providing operational replenishment plus select GS replenishment services at the tactical level. Operational level replenishment is co-ordinated by the in-theatre sustainment staff of the Joint Force Headquarters in tandem with the headquarters staff of the CSG. Key operational replenishment elements are the Supply, Transportation and Forward Mobile Support Battalions (FMSBs) of the CSG. These CSG units are responsible to move all material brought into theatre by strategic resources to the CS units of the formation. The Canadian Forces Joint Manual B-GG-005-004/AF-013, « *Logistics Support to Canadian Forces*

Operations », should be consulted for more information on operational level replenishment and the Supply and Transportation Battalions.

9. **The FMSBs**. FMSBs are unique elements in the replenishment system. They are part of the organization of the CSG. However, their role is almost entirely tactical. These units provide similar GS capabilities to that found in the functional battalions of the DISGP but which are lacking from the sustainment structure of the Brigade Group. They may be tailored to conduct sustainment points for exchange of material with the DISGP/CS Svc Bn. They may also come forward in the combat zone to deliver spare parts, general and technical stores or virtually any type of tactical replenishment service that cannot be satisfied by the CS element. In X Allied Corps , the FMSB's will have a command and control relationship with a Corps Support Group of the US COSCOM. This will enable the FMSB to draw its common combat supplies (fuel/rations/water) from the COSCOM and Canadian-unique items from the Supply Battalion of the CSG. Ultimately, most material destined for Canadian troops will funnel through an exchange point established by the FMSB to the DISGP and the CS Svc Bn of the brigade group.

10. **Sustainment Points**. Sustainment points are established by the FMSB in support of the doctrinal division or the independent brigade group. These sustainment points are the bridge between operational and tactical replenishment. With the use of new information systems and digital technology by the FMSB, these points will evolve from being mere geographical stockpiles to being replenishment activities in their own right. They include such entities as operational level ammo points, ration depots, POL farms, composite replenishment points (RP) and such techniques as transhipping (delivery direct to echelon by operational resources). Sustainment points are used to provide immediate replenishment of combat supplies and a limited range of critical, fast-moving items to the deployed Canadian formation forward of it. They are also the points from which CS replenishment elements draw non-combat supplies, which have been demanded by units. For example, the RP in the X Allied Corps scenario, will receive its common supplies from the US COSCOM and it will also stock the requisite Canadian-unique items. An RP can be task-organised to hold multiple days of combat supplies and it will be sufficiently far forward to allow CS transport assets from the CS Svc Bns and the DISGP Tn Bn to conduct daily replenishment. Due to the forward location of all operational sustainment points, the nature of their holdings and the need for survivability, the sustainment points must be moved periodically. To avoid

disruption while providing support, a sustainment point should be permitted to run down while a new one is established elsewhere.

11. **Tactical Delivery Operations**. The delivery "nozzle" used by the replenishment system can be tailored to best address the tactical plan. All tactical transportation elements operating within the combat zone are able to perform these operations in either the X Allied Corps or the Brigade Group scenario. Tactical delivery operations include:

a. **Delivery Points (DP)**. DP's are points where CS replenishment elements deliver commodities to unit integral transport. DPs offer certain benefits as they require the occupation of terrain for only a brief time period. They also serve to minimise the movement of administrative traffic in the forward CZ. Central DPs are slightly different. Unlike a DP which opens and closes within thirty minutes and serves a unit (or group of units), a central DP remains open for a more protracted period and provides replenishment to multiple manoeuvre units.

b. **Commodity Points**. Commodity points are platoon-size points, which stock one type of combat supply (e.g., ammunition). These points are also sited and defended by CS replenishment resources and they eliminate many of the weaknesses of the DP's in that they are available for replenishment at the convenience of the supported unit.

c. **Dumps and Dumping Programs**. Dumps are temporary storage areas for any commodity that needs to be stockpiled to execute the tactical plan. Dumps, like all ground-loaded stores, involve a high degree of risk and their use must be carefully considered by the staff after a thorough mission analysis. They are normally executed at the division level by the DISGP Tn Bn but they may be utilised by an independent Brigade Group as well. In the Independent Brigade Group scenario, the CSG Tn Bn or the FMSB Tn Coy will conduct dumping operations for the brigade group. Canadian dumps normally involve artillery ammunition, engineer resources and defensive stores but they are certainly not limited to these items.

12. **Tactical Level Replenishment**. The replenishment of the two Canadian formations within X Allied Corps is somewhat different. The Canadian Division includes a Divisional Services Group (DISGP) which has replenishment elements providing all CS and GS required within the division. The Independent Brigade Group has a Service Battalion, which provides CS level support while its GS level support is included in the operational level FMSB.

a. **Tactical Replenishment of the Canadian Division**. The DISGP is a tactical formation, integral to the Canadian Division. It provides CS and GS replenishment to the division as shown in figure 3-2. The DISGP draws its operational level support from the US COSCOM and the CSG through the sustainment point established by the FMSB. Elements providing replenishment are:

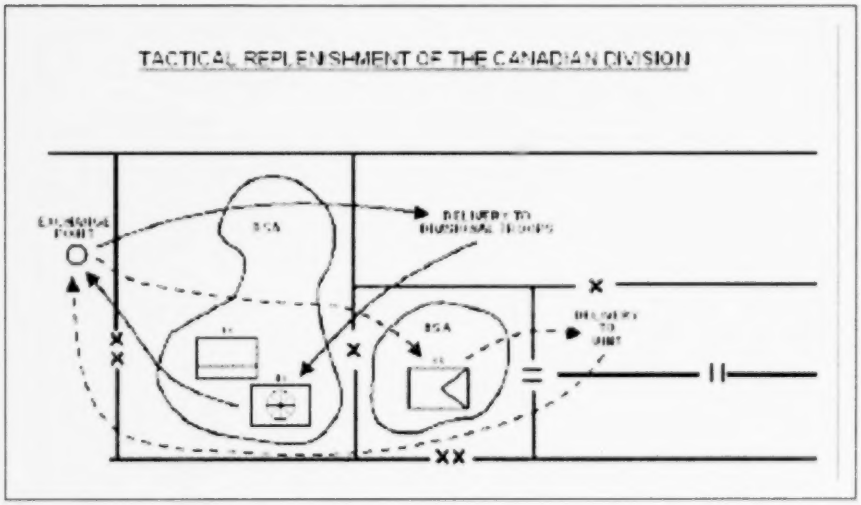

Figure 3 - 2 Tactical Replenishment of the Canadian Division

(1) **The DISGP Transportation Bn**. The DISGP Tn Bn, located in the DSA carries the maintenance load of combat supplies for the Divisional Troop units and controls all material traffic movement for the division. It provides the Movement Control Centre (MCC) for the division, which is normally located with the Material Management Centre (MMC) of the Supply Bn. The greater portion of task vehicles in the Tn Bn will be outfitted with a pallet

loading system (PLS) to enhance the dumping capability of the Tn Bn. The DISGP Tn Bn will have the capability to form composite Replenishment Bns with the DISGP Supply Bn in order to provide composite GS on separate L of C, if the operational plan requires.

(2) **The DISGP Supply Bn**. The DISGP Sup Bn is located in the DSA. It holds the heavier repair parts in the division and general and technical items.. The DISGP Sup Bn also provides such specialised, central GS services as material management, laundry, bath and decontamination, and other ancillary services such as non technical repair and quality control

(3) **The DISGP Svc Bn Supply and Transportation Company**. This highly mobile company is found in each of the three DISGP Svc Bns. S & T Coy carries its brigade maintenance load of combat supplies and it is capable of executing all of the tactical delivery operations. In unique circumstances, the S&T Coy can participate in dumping operations if the maintenance load is ground-loaded and this risk is accepted by the commander. The supplies are drawn daily from the FMSB, which holds common combat supplies from the COSCOM with Canadian unique items.

(4) **Tactical Replenishment of the Independent Brigade Group**. An Independent Brigade Group is a formation, with the normal combat elements of a brigade, and which has its own combat support and CSS resources enabling it to conduct independent operations. It has no DISGP from which to draw GS replenishment services. The only replenishment capability integral to the brigade group is the provision of combat supplies. They are carried on wheels in the highly mobile CS Svc Bn S&T Coy. The CS Svc Bn S&T Coy carries the brigade's

maintenance load of combat supplies and delivers other classes of supply when demanded. The S&T Coy travels the replenishment cycle between the units of the brigade group and the FSMB. All other material is held in GS by the forward elements of the CSG. These classes of supply are either brought forward by GS elements of the CSG or the S&T Coy picks them up at the sustainment point during the routine working of the replenishment cycle.

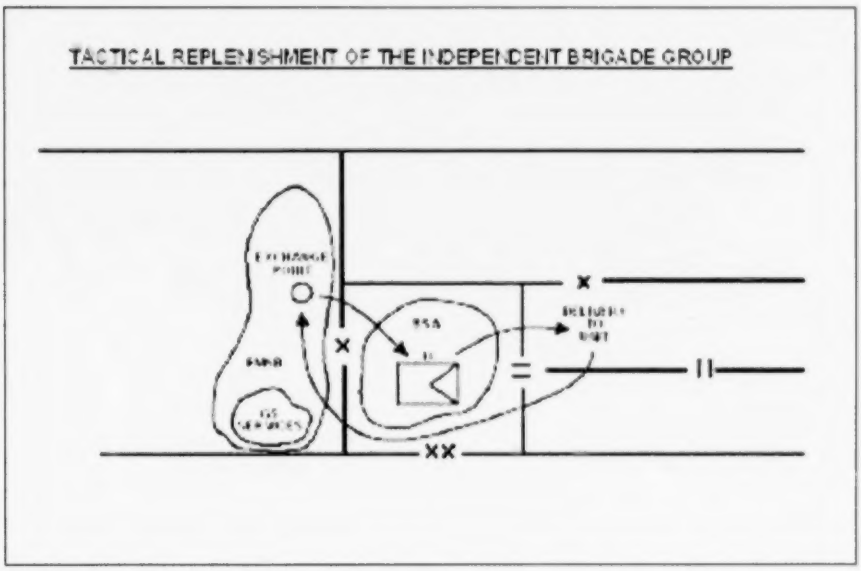

Figure 3 - 3 Tactical Replenishment of the Independent Brigade Group

TASKS OF THE REPLENISHMENT SYTEM

13. **Tactical Replenishment**. The tactical replenishment involves the daily filling of unit demands by the CS/GS replenishment elements in both the Canadian division and independent brigade group scenarios. Tactical replenishment usually occurs on a 24-hour cycle. Items, which constitute immediate operational requirements, (IORs) will always be delivered as soon as practicable by GS replenishment elements. All classes of supply are delivered by the replenishment system with the exception of medical supplies, which are the responsibility of the Health Services Support system described in Chapter 6. Combat supplies (fuel, ammunition, rations and water) are normally segregated for delivery because of their high rate of

consumption. These supplies are "fast tracked" by the replenishment system to ensure daily push delivery. All other classes are generally effected by pull replenishment and they include: general and technical stores, defence stores, engineering stores, repair parts and major end items. The tactical delivery of commodities within the replenishment system is shown in Figure 3-2 and 3-3.

14. **General Transport**. The military vehicles of the replenishment system are all capable of general transport tasks such as troop lift, delivery of armoured fighting vehicles and major components as well as the forward movement of personnel replacements. The primary resources to conduct general transport are found at the GS level within the DISGP Tn Bn, the FMSB and within the CS Svc Bn S&T Coy.

15. **Material Management and Distribution**. Material management is that aspect of sustainment which, along with the determination of requirements, includes managing, cataloguing, procuring, storing, distributing, overhauling and disposing of material. The material management system in an operational theatre consists of the inventory elements at supply storage facilities and material management centres (MMCs) at all levels of the replenishment system. The MMC at each level is the heart of the material management system. It manages the commodities for which each level of headquarters has jurisdiction; it satisfies demands from supported units by directing shipments from any sources under its jurisdiction; it makes recommendations to the staff concerning stock levels and additions or deletions to stock holdings. In a very real sense, the MMC's convey the pulse of the replenishment system. The MMC at each level works very closely with the Movement Control Centre (MCC) to effect the distribution of material.

16. **Aerial Delivery**. All levels of the replenishment system must be capable of delivering commodities by air. This includes the ability at both GS and CS tactical levels to sling helicopter loads for aerial delivery to manoeuvre units.

17. **Laundry Bath and Decontamination**. These services provide important resources in enhancing survivability, particularly of contaminated personnel and equipment. The Army adheres to the philosophy of fighting as clean as we can but as dirty as we have to. Contaminated stocks are normally not issued but are kept segregated from clean stocks until they can be fully decontaminated. In emergency situations, when insufficient, uncontaminated stocks are available, contaminated supplies may be issued.

Contaminated supplies would be issued first to those units which are similarly contaminated. Only under the most exceptional circumstances will contaminated stocks be issued to an uncontaminated unit. Laundry, bath and decontamination organisations at all levels are organised in such a manner as to operate in self-sufficient detachments to provide immediate local support and services to manoeuvre units and formations. Centralised control of these services is critical while decentralized operations are most effective in rendering efficient service.

18. **Postal.** A Canadian Forces post office (CFPO) will be established in the operational theatre to provide the full range of postal services. The task of transporting both official and personal mail within the theatre is executed by the replenishment system and mail is exchanged along with supplies. CFPOs are often co-located with replenishment elements to facilitate mail delivery.

19. **Salvage/Rearward Delivery of Material**. Items which can be repaired and reused, such as worn repair parts, broken equipment and salvage are carried rearward by the most sensible means—either the replenishment system or the LEMS system described in the next chapter. There are many valuable lessons that can be learned at the operational and strategic levels from patterns of wear that cannot be discerned at the tactical level.

Summary

20. The replenishment system is analogous to a giant funnel with a wide mouth at the strategic level and narrows at the tactical level. It is a forward-focussed system which passes material seamlessly and continuously through the strategic and operational levels to the fighting soldier on the FEBA, based on either push or pull dynamics. The system is capable of linking to a US COSCOM in a divisional scenario or drawing forward GS replenishment services from the CSG in an independent brigade group deployment. Despite the many different sources of material used by the system today, the manoeuvre units rely strictly on the CS replenishment element for the co-ordination of support so that the intricate network of replenishment activity behind the formation rear boundary remains transparent. Tactical replenishment elements use DPs, commodity points and dumps to effect material delivery.

CHAPTER 4
THE LAND EQUIPMENT MANAGEMENT SYSTEM

ROLE

1. The role of the Land Equipment Management System (LEMS) is to maintain the operational capability of all land equipment.

ROLE

THE LAND EQUIPMNET MANAGEMENT SYSTEM

TASKS

- Maintenance
- Recovery
- Repair Parts Management
- Technical Training
- Acquisition And Disposal

SUMMARY

The Land Equipment Management System

2. The reality of expensive modern weapons systems and combat vehicles, and the extensive lead time required for their production has made modern battlefield equipment a scarce and valuable resource. The support system of the equipment requires tight and efficient management practices, but must also be capable of operating and surviving under battlefield conditions. The LEMS is a fully integrated, co-ordinated and self-sufficient system that encompasses the entire spectrum of equipment management and is designed to support from factory right through to the front lines. Equipment management is the process by which the equipment is planned, acquired, fielded, maintained and disposed. Equipment is defined as all non-expendable items needed to equip a unit or a formation.[7]

3. The LEMS is accountable to the commander for maintaining the capability of his equipment at the state of readiness that is required to support the plan. It provides a single point of contact for all equipment-related issues. The LEMS is built upon a concept of progressive and

---

[7] **AAP-6 (U)** *NATO Glossary of Terms and Definitions*

seamless support that is focused forward. The highly competent and versatile nature of its soldiers gives the LEMS its extraordinary flexibility and allows for the rapid centralisation/decentralisation of its resources as the situation dictates.

4. The support that the LEMS provides throughout the different levels of sustainment is shown in Figure 4-1 and can be described as follows:

a. **Tactical Level**. At the tactical level, the LEMS is concerned with restoring the capability of equipment through repairs and limited equipment replacement. It is also involved in planning and co-ordinating the best use of its resources through work backloading or cross-loading. The equipment is segregated into priority and non-priority equipment based on the commander's identification of those systems which are deemed critical to the operation. Generally, priority equipment include A vehicles (combat), essential B vehicles (soft skin) and major weapons systems. Non-priority equipment includes B and C vehicles (heavy engineering), small arms, ancillary and repair parts. The LEMS operates as such:

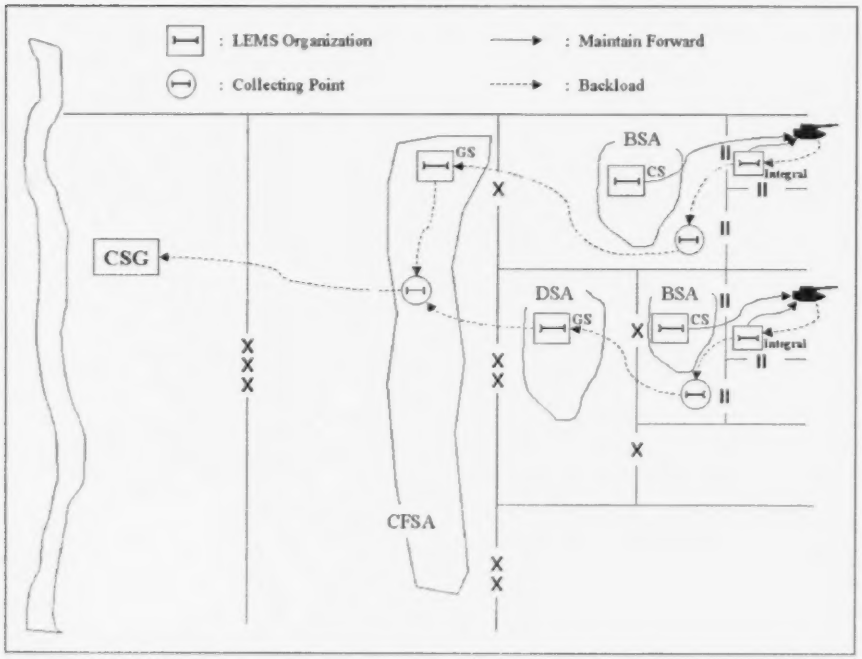

Figure 4 - 1 The LEMS

(a) **Integral Support**. This is the organic LEMS support provided to a unit CO to support all equipment within that unit. At this level, the work focuses on equipment casualties that can be restored to operational capability within a short time (usually less than four hours). The work comprises: operator maintenance, preventive maintenance, limited battle damage repair (BDR), minor equipment replacement, modifications, extrication and righting, backloading to the equipment collecting point (ECP), route clearance, equipment denial (destruction), and equipment accounting. Most priority equipment support is performed as far forward as the tactical situation will permit (A1 echelon) so that it can be returned to battle immediately, allowing for the maximisation of combat power. Non-priority equipment is usually backloaded to the A2 echelon where it is restored to an operational condition. Integral LEMS organisations consist of all maintenance platoons/troops/detachments within units.

(b) **Close Support (CS)**. This is the intimate LEMS support provided to the commander of a formation to support the priority equipment that can be restored to operational capability within a day. The work is limited to extensive BDR and corrective maintenance through replacement of major assemblies. If the tactical situation permits, CS is done directly at the casualty location. If required, the CS will augment unit LEMS integral support resources. The maintenance

company of the CS Service Battalion performs a LEMS CS role.

(c) **General Support**. This is the LEMS support provided to all elements of the force, which is not provided by any other Integral or the LEMS CS organisation. It is responsible for the non-priority equipment that can be restored to operational capability. It will also support units, which do not have integral LEMS resources and will augment the capabilities of Integral and LEMS CS organisations which have a shortage of resources or an over abundance of work. The support includes: corrective maintenance through replacement of major assemblies, modification, reconditioning of sub-components, cross-loading of casualties to lateral LEMS organisations, backloading from ECP to the backloading point (BLP), and route clearance. The rearward location of LEMS GS organisations permits them to backload non-serviceable equipment to a centralised location where more resources can be dedicated to production versus battlefield survivability. The LEMS GS organisation will operate from the DSA, when supporting the Canadian Division and from the CSA, when supporting the Independent Brigade Group. The Maint Bn of the DISGP performs a LEMS GS function.

b. **Operational Level**. At the operational level, the LEMS is designed to undertake more complex equipment management functions. In support of the theatre commander, the LEMS is responsible to ensure the operational capability of all land equipment from the time

it arrives in theatre until is it issued to the Canadian Division or the Independent Brigade Group, or any other joint formation of the Air Force and Navy. At that level, the support includes: reconditioning of major assemblies for stock to the replenishment system, inspection and certification of equipment arrivals, fielding of new equipment, in-theatre equipment acquisition, accounting, technical training for theatre specific equipment, preservation, salvage, and equipment condemnation and disposal. Important staff functions occur at that level such as the co-ordination of Canadian equipment support from the host nation or other allied military forces and the co-ordination of efforts with any home nation contractor supporting the equipment. It will normally operate from a TLB. The organisation that performs operational level LEMS functions is the Maintenance Battalion of the CSG.

c. **Strategic Level**. At this level, the LEMS is concerned with generating new equipment to sustain the operational effort. The support includes: research and development, major crown acquisition, engineering and design, maintenance plan, distribution plan, life cycle management, individual technical training, and LEMS policies, directives, procedures and doctrine. The LEMS functions are performed by land equipment management staffs at National Defence Headquarters.

5. **Replacement Policy**. Maintaining the operational capability of equipment can be performed through several means. Although the scarceness of equipment dictates maximum use of maintenance, replacement of the equipment often better meets the commander's tactical requirements. Determining when the replacement of the equipment becomes the best course of action is a LEMS responsibility. The accountability and distribution of that same equipment is a replenishment task. For efficiency and effectiveness reasons however, the LEMS will carry and exchange a limited quantity of minor non-vehicular equipment to perform immediate replacement when appropriate. A vehicle is automatically replaced through the replenishment system as soon as the LEMS establishes that restoring the operational capability of that vehicle requires LEMS support from the operational level.

6. **Robbing, Cannibalization and Salvage Policy**. Robbing, is the controlled removal, with intent to replace, of serviceable repair parts from equipment as an expedient method of restoring another equipment to a serviceable condition. Robbing can be authorised by a CO who usually delegates that authority to his maintenance officer. Cannibalisation differs from robbing by the fact that there is no intent to replace the removed part and that it is usually only authorised when the equipment is awaiting condemnation. This authorization can therefore, only be granted by the level authorised to release a replacement for that equipment. In the case of vehicles, the operational commander is the authority. Finally, salvage is the recovery of spare parts on discarded, condemned or abandoned equipment for reuse. No authority is required to perform this action, however the recovered part must immediately be inventoried and added to stocks.

TASKS OF THE LAND EQUIPMENT MANAGEMENT SYSTEM

7. **Maintenance.** Maintenance consists of all actions taken to keep equipment in or to restore it to specified conditions. The maintenance functions are focused on the in-service phase of the life cycle of equipment. These include: preventive activities (inspections, servicing, overhaul, rebuild, retrofit, preservation, equipment restriction, and preparation for special operations); corrective activities (diagnosis, repair, and overhaul), modification; and technical inspection.

8. **Recovery**. Recovery includes: extrication and righting, backloading and cross-loading, battlefield clearance, and obstacle duties. Recovery will deny any possible use by the enemy and assists in getting equipment back into action with minimum delay. Recovery resources can also have a direct effect on the success of combat operations by keeping routes clear for the tactical and logistic movement of troops and supplies.

9. Backloading of vehicles and some major assemblies (e.g. weapons systems and generators) is done through collecting points established to make optimum use of recovery resources. The ECPs which collect casualties backloaded by integral LEMS organisations are operated by LEMS CS elements and cleared by the LEMS GS elements to the BLP. The BLPs are operated by LEMS GS elements and cleared by operational level LEMS elements.

10. **Repair Parts Management**. Repair parts management is a LEMS responsibility. However, the distribution of the repair parts lies within the

replenishment system. The vital activity in repair part management is the accurate forecasting of usage rate, which is based on equipment reliability and battle damage estimates. This will dictate the storage/lift requirement and will become the main factor in establishing a list of controlled assemblies. Other repair parts management functions include: initial provisioning (for new equipment) and scaling (for in-service equipment); procurement (including robbing, cannibalisation and salvage); storage directive (e.g. shelf life); reconditioning of repairables; and disposal.

11. **Technical Training**. The LEMS is responsible to ensure that its soldiers possess the required skills and knowledge to successfully perform all equipment management tasks throughout the spectrum of the sustainment levels. The decentralised nature of the LEMS support concept often requires small teams to perform their tasks in total isolation; thus the vital requirement for junior personnel to be highly trained. Furthermore, to cope with modern battlefield technology, LEMS personnel are trained to very high technical levels over a broad spectrum of equipment management functions so that their employment can stay versatile and flexible. In order to survive and operate on the battlefield, LEMS personnel are also required to possess skills and knowledge to perform basic infantry section and platoon tactics. Formal training mostly occurs at the strategic and, to a lesser degree, at the operational levels. On-the-job training is continually performed at the tactical level and LEMS commanders are responsible to ensure that the technical expertise of his troops is kept up to standard.

12. **Acquisition and Disposal**. The LEMS plays a major part in the design, evaluation and selection of new land equipment and performs project management and systems engineering activities related to equipment acquisition, in-service support and disposal. This applies whether acquiring a complete fleet of Light Armoured Vehicles at the strategic level, or chain saws at the tactical level. The LEMS ensures that the new equipment can perform the mission, survive on the battlefield, stay reliable, and that the necessary amount are acquired to achieve the right level of readiness to accomplish the mission. When an equipment can no longer perform its function, the LEMS will ensure that it is condemned and disposed in the most efficient manner, sometime performing salvage action if necessary. This acquisition agility is the catalyst to facilitate the provision of equipment quickly and cost effectively.

SUMMARY

13. The LEMS is an extension of the national equipment program management principles by providing strategic to tactical level support to the commander's requirements. The LEMS seamlessly integrates the support functions allowing for the most efficient provision of equipment while balancing reliability, maintainability and availability within resources constraints.

CHAPTER 5
THE PERSONNEL SUPPORT SERVICES SYSTEM

ROLE

1. The role of the personnel support services system is to maximize the combat effectiveness of personnel through the maintenance of a high state of morale.

ROLES

THE PERSONNEL SUPPORT SERVICES SYSTEM

TASKS

- Personnel Replacements
- Personnel Records
- Financial Services
- Provision Of Amenities
- Postal Services
- Legal Services
- Chaplain Services
- Military Police Services
- Mortuary Affairs

SUMMARY

THE PERSONNEL SUPPORT SERVICES SYSTEM

2. The personnel support services system includes all of the personnel related services which are required to preserve the integrity of the fighting force and maintain the cohesion and fighting effectiveness through a high state of morale. This includes such functions as replacement of personnel and crewed vehicles, financial services, chaplain services, legal services, police services, mortuary affairs and record keeping. Note that the provision of health services is also part of the personnel support services. However, because of its importance under the Canadian doctrine, a separate system, the health services support (HSS) system has been developed. The HSS system is described in Chapter 6.

3. The personnel support services system spans the strategic, operational and tactical levels of operations. At the strategic level, personnel support services policies are established and are planned into the sustainment of any operational mission. The initial planning estimates for

the operation will determine the number of personnel replacements required as well as the extent to which other services are needed. The strategic plan will provide guidance into the personnel support services and how they will be implemented.

4. At the operational level, the personnel replacements and other resources are received into the theatre of operations and prepared for employment or use by the tactical force. The CSG is responsible for the co-ordination of the personnel support services and the movement of the personnel and other resources to the tactical level when appropriate.

5. The remainder of this chapter will discuss the personnel support services within the Army's tactical level, that is, within the combat zone. It will provide a description of the tasks of the personnel support services system and will outline the usual methods by which these are implemented.

TASKS OF THE PERSONNEL SUPPORT SERVICES SYSTEM

6. **Personnel Replacements**. In any operation, the force will require a flow of replacement personnel to take the place of those killed, injured or sick, or evacuated for any reason. The number of replacement personnel will depend on the type of operation. In war operations the number of casualties, both from combat losses and non-combat losses, will probably be significant. In OOTW the losses usually are only non-battle related, requiring fewer replacements. Replacement personnel are considered in three categories; individual replacements, formed groups and crewed-vehicle replacements.

a. **Individual replacements**. There will be a requirement to provide replacements with specific skills and ranks. Planning for the operation will include estimates of the number of replacements expected, based on historical data. The individuals arrive in the theatre with the technical skills required to complete their functions as well as the basic soldier skills. The CSG is responsible to ensure that they have acclimatization training to prepare them for employment within the tactical force. When ready, the tactical commanders will be notified of the replacements available by military occupation code (MOC) and rank. The replacements will then be assigned to a tactical formation or unit based on the current tactical

requirement. The individual replacements are moved from the CSG in the COMM Z, where they have completed their training, to the CZ. Depending upon the situation they may move to the CSG's forward element, the FMSB, in the Corps Rear Area, then to the Close Support Service Battalion and finally to their new unit or in a more direct route should the commander so dictate.

b. **Formed Groups**. For some operations, the estimates may show that there will be significant casualties, mostly to the infantry, armoured, artillery and field engineer units. It is often beneficial to have replacement groups such as infantry companies or platoons, armoured squadrons or troops, artillery batteries or troops and engineer troops or sections that are ready for employment as a group. This replacement process implies that the groups have already completed training for employment up to and including that level. Integration into their new unit or sub-unit becomes easier, resulting in a much greater level of combat effectiveness. The tactical commander will be very interested in the availability of formed groups and will assign them to units at an appropriate time. Formed groups usually move directly from the COMM Z to their new units.

c. **Crewed-Vehicle Replacements**. Some equipment such as tanks, howitzers, certain air-defence equipment and helicopters are combined with their crew and given training in the operation as a team prior to being deployed forward from the COMM Z. Within the CSG these equipment are received into theatre, prepared for use and then provided with a crew. Once trained the crewed vehicles are sent forward as individual vehicles or as part of formed groups. They may follow the same path forward as individual replacements or may be sent forward directly to their new unit.

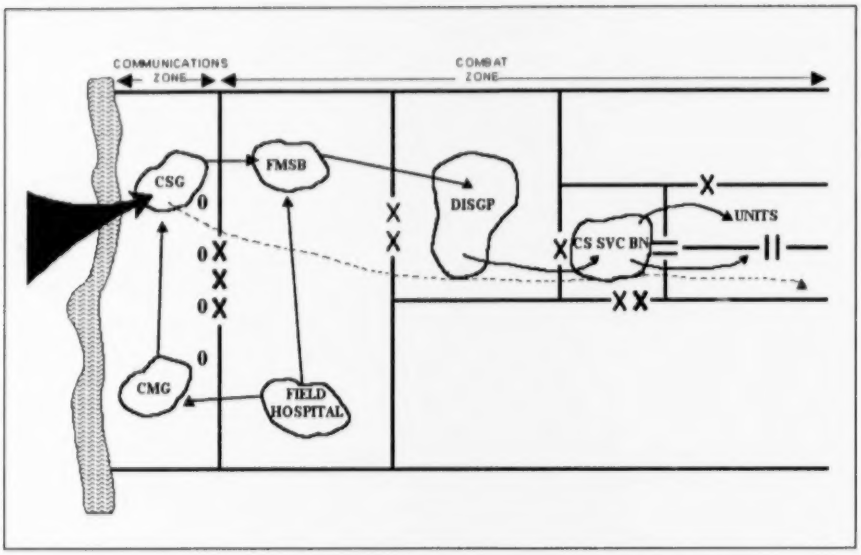

Figure 5 - 1 Personnel Replacements - Movement Forward

7. Replacements are received into the CSG from two sources: Canada and the in-theatre HSS system. The bulk of replacements are trained in Canada and sent into the operational theatre in accordance with the strategic plan. Others come from within the medical system. Units are authorized to request a replacement for someone who is injured and is beyond the patient holding criteria at divisional level. Once the injured individual crosses behind the divisional rear boundary the unit will receive a replacement if allocated by the tactical commander. Most soldiers who require medical evacuation to the Canadian Medical Group will likely require onward evacuation back to Canada as they may be unfit for further duty. Some injured personnel may recover and if they are fit for duty they enter the replacement system within the CSG.

8. **Personnel Records**. Personnel records are maintained on each soldier deployed within an operational area. Units are provided with administrative personnel to ensure that records are accurate. Personnel Support Centres are established within each unit to be the point of contact to maintain these records and provide other personnel support services to the soldiers.

9. **Financial Services**. Financial services fall into two categories: public funds and non-public funds (NPF). Public funds support includes the pay and allowances of individuals as well as control of funds spent in

support of the operation. NPF support includes the accounting for unit canteens, messes and institutes.

10. Within each major unit the Personnel Support Centre provides support to individuals including resolving pay questions and providing currency, settlement of claims and financial advice. NPF support includes receipt and deposit of NPF funds. Small units without a Personnel Support Centre will receive support from a designated major unit. In the case of the brigade group it is normal that the Close Support Service Battalion be assigned the responsibility for the small units such as the Military Police Platoon.

11. The National Commander and, if delegated the authority, the Tactical Commander, will establish the policy on contracting and local procurement. Normally the CSS units will be authorized to procure certain items to support the operation. The appropriate Personnel Support Centre will provide the payment of invoices and accounting of the contract funds.

12. **Provision of Amenities**. It is important that soldiers be provided with the maximum amount of comforts possible given the circumstances. This will usually include the establishment of messes and institutes as well as the provision of reading material, films, VCRs, radio programs, computer Internet services and live artistic performances. The amenities program will also include leave and/or rest and recreation (R&R) services including those integral to convalescent centres, which will usually be located in the COMM Z or outside of the theatre of operations.

13. **Postal Services**. The distribution of official and personal mail will be provided by CF Post Offices established at all levels. Military classified and non-classified mail services will be operated to service the needs of the Army. Mail services operated in accordance with Canada Post regulations will provide, free of charge, all services for soldiers within the theatre of operations. At unit and formation levels, adjutants and personnel staffs co-ordinate postal services through the Personnel Support Centres. The National Commander will establish the policy for censorship of outgoing mail.[8]

---

[8] **B-GL-300-005/FP-000** *Information Operations*, outlines current doctrine on censorship.

14. **Legal Services**. The modern law of armed conflicts consists of a body of law, which has its sources in international conventions (agreements or treaties between states), international custom, general principles recognized by civilized nations and decisions of national and international courts. Important differences in law arise in war, which will require legal opinions. For example, the investigation and disposition of war crimes and suspension of the statute of limitations for certain crimes committed in wartime. This is complex and commanders and staff at all levels will require legal assistance and advice.

15. Legal advisors provide legal advice to formation commanders and their staff on all matters of military law: domestic; foreign; international, particularly the laws of war and Rules of Engagements (ROE) during OOTW. Legal advisors will also advise on the administration of military justice, provide legal guidance on government contracts and military personnel matters and counsel on military justice matters.

16. **Chaplain Services**. Chaplains provide spiritual and moral support to all ranks, and particularly spiritual comfort to the sick and wounded. Chaplains will also provide moral and spiritual advice to all troops. They will conduct religious services, including burial services. The chaplains make an important contribution towards morale in a fighting unit. They must receive support and assistance, not only from formation commanders and unit commanding officers, but also from other leaders of the unit for which they are responsible.

17. **Military Police Services.**

a. **Straggler Operations**. Stragglers are individuals who, without apparent purpose or assigned mission, become separated from their unit. They may be lost, have medical problems or be absent without authority. They must be directed back to their units without delay, receive medical treatment or detained if necessary. Military police units usually establish a straggler control system, paralleling the traffic control network to aid in the return of stragglers.

b. **Police Operations**. The Military Police will conduct crime prevention, law enforcement, and investigations[9]. This service is provided to commanders in order to assist them in the maintenance of discipline, especially in rear areas and during periods of rest and recreation. Military Police units, in co-operation with unit COs and formation commanders, will focus on crime prevention in order to maintain discipline rather than to impose it.

c. **Detention Operations**. The Military Police is charged with the responsibility of operating the required facilities and to co-ordinate the rearward evacuation of prisoners. Detention operations regroup three categories of detainees defined hereunder:

(1) **Custody and Detainees Operations**. In order to maintain discipline it will, at times, be necessary to hold soldiers under arrest or to detain soldiers for service offences[10]. Military Police soldiers will provide this service to all units.

---

[9] **B-GL-362-001/FP-001**, *Land Force Military Police* provides details as to how these services will be provided.

[10] "**service offence**" means an offence under the National Defence Act, the Criminal Code or any other Act of Parliament, committed by a person while subject to the Code of Service Discipline

(2) **Civilian Custody Operations**. Civilian persons may also be held in custody when they commit offences in an area of operation. The ROE will identify how these individuals should be treated and returned to civilian authorities.

d. **Prisoners of War Operations.** Prisoners of war will be detained in accordance with the Geneva Convention. Prisoners of war (PW) collection points will be established in the CZ and PWs will be sent rear to the MPU PW camp or allied PW holding area.

18. **Mortuary Affairs**. Mortuary affairs, refers to the handling of the deceased. It is important for morale that our own and the enemy dead are buried with due ceremony and without delay. For each operation, NDHQ will establish the policy for burial of Canadian soldiers who die within the operational theatre. Mortuary Affairs are the responsibility of the Canadian National Commander. At the operational level, mortuary affairs services will usually be provided by an element of the CSG. The services included in mortuary affairs are: evacuation, autopsy, burial and graves registration.

a. **Evacuation**. The National Commander will establish the policy on the evacuation of remains. In general, the remains of all Canadian soldiers will be repatriated to Canada promptly except when determined otherwise by national policy for a specific operation or when the situation in the theatre, such as contamination by NBC agents or infectious diseases, dictates that this is not possible. Should such a situation occur, appropriate ceremonies will be conducted and the remains will be buried in Canadian, Allied Forces, or War Graves Commission cemeteries.

b. **Autopsy**. When doubt exists with respect to the circumstances of the death of a soldier an autopsy will be carried out promptly. The National Commander will issue a policy stating when autopsies are mandatory and will usually delegate authority to order autopsies to subordinate commanders, legal officers and medical officers.

c. **Burial**. Remains returned to Canada will be buried in accordance with the wishes of the next of kin. Burials that occur within a theatre of operations are classified as one of three types; emergency burials, temporary burials or permanent burials.

(1) **Emergency burial** is a hasty burial, usually on the battlefield, when circumstances do not permit the prompt evacuation of the remains. The remains will be disinterred as soon as practical and with due regard to hygiene. Responsibility for emergency burial normally rests with the soldier's parent unit.

(2) **Temporary burial** is only an interim measure required when it is not possible to evacuate the remains to the final resting place, either to Canada or to a permanent burial site. The remains are disinterred when it becomes possible to complete the evacuation to the final resting place.

(3) **Permanent burial** occurs when the remains are not to be returned to Canada, usually for health or safety reasons, but are to be buried in the theatre of operations.

d. **Graves Registration**. It is important that accurate records be maintained of where the remains of all Canadian soldiers are buried, whether they are emergency, temporary or permanent burials. Mortuary Affairs elements are responsible to ensure accurate records are available so that the Government of Canada, the families and the Host Nation are aware of the details to allow appropriate commemoration following the hostilities.

SUMMARY

19. The maintenance of morale and the welfare of the troops are paramount to sustaining the fighting spirit of the Canadian soldier. The

commander and staff through a detailed understanding of the personnel support services system will ensure that he has well trained replacements, loyal troops and well motivated soldiers.

CHAPTER 6
HEALTH SERVICES SUPPORT SYSTEM

ROLE

1. The role of the Health Services Support (HSS) system is to conserve the personnel strength of the warfighting force.

ROLE

THE HEALTH SERVICES SUPPORT SYSTEM

TASKS

- **Treatment**
- **Evacuation**
- **Preventative Medicine**
- **Stress Reaction**
- **Medical Intelligence**
- **Medical Replenishment**
- **Administration Responsibility Of Patients**

SUMMARY

THE HEALTH SERVICES SUPPORT SYSTEM

2. To remain consistent with the terminology used in B-GG-005-004/AF-017 *Health Services for Canadian Forces Joint and Combined Operations*, this publication will refer to the combination of the Medical and Dental Support sub-systems as the Health Services Support System.

3. Conservation of the personnel strength takes several forms, including the rigorous prevention of illness and injury both medical and dental. During combat, it means the salvage of life and limb. After combat, it involves the rapid return to duty of both the sick and injured. Finally it refers to the evacuation from an area of operations of those who are not expected to return to duty within a reasonable period of time.

4. As with all of the systems of Sustainment, the HSS system must provide a valuable service to the warfighting forces without restricting the tactical commanders freedom of action. Given that the Army has adopted the philosophy of manoeuvre warfare, the HSS system is now faced with the difficult tasks of, not only providing excellent health treatment and evacuation on the battlefield, but with the further constraints of increased

areas of operations to support increased manoeuvre and hence, further dispersed medical resources, the need for far forward surgical support to warfighting forces and more concentrated casualties in shorter decisive operations. It must be noted that even though Canada has signed on to the Geneva Conventions, many nations have not. Recent operations have shown that the Red Cross has not always been respected by belligerents and it can be assumed that in future wars this may also be the case. The enemy, in an attempt to disrupt our forces morale and well-being and seeing the HSS system as a critical vulnerability, may target HSS facilities and stores.

5. The HSS system is organized into levels corresponding to the command and control relationship at each level of organization as outlined in Chapter 2. Each successive level of support becomes more sophisticated from front to rear.

6. The HSS system is reviewed here, as specific medical and dental terms are used as follows:

a. **Tactical Level Support**. This level is subdivided into integral, close and general support:

(1) **Integral Support**. Provided by medical elements integral to units, e.g., the manning of a company casualty collection point (CCP) or a unit medical station (UMS);

(2) **Close Support**. Provided by health support elements either attached to a formation or integral to a formation to support the manoeuvre element such as a field ambulance in a CMBG or divisional medical companies attached to a brigade within a division; and

(3) **General Support**. Provided by health support elements retained by a formation of division level or higher to provide health support for the entire formation such as the Division Medical Battalion.

b. **Operational Level Support**. HSS formations and units such as the Canadian Medical Group (CMG) reporting to the Force Commander and which are usually employed in

the COMM Z, e.g., a field hospital or a forward medical equipment depot (FMED). Within the X Allied Corps model, elements of the CMG could be placed under control of the U.S. Army Medical Brigade within the Corps Support Command (COSCOM).

c. **Strategic Level Support**. National medical formations and units, e.g., Canadian Forces Medical Group (CFMG), Canadian Field Hospital (CFH), and Central Medical Equipment Depot (CMED).

TASKS OF THE HEALTH SERVICES SUPPORT SYSTEM

7. **Treatment**. All patients require individual consideration of their treatment needs. While the needs for treatment and evacuation are different, they are usually considered concurrently, leading to the assignment of a priority. The priorities for treatment and evacuation are as follows:

a. **Priority 1** - Immediate. The patients' life is immediately threatened. Rapid evacuation, preferably by air, and expeditious treatment is necessary to save the life. Approximately 20% of patients are normally in this category;

b. **Priority 2** - Early. Life or limb are in serious jeopardy though not immediately threatened in this category. Approximately 20% of patients are normally in this category.

c. **Priority 3** - Routine. Neither life nor limb are in serious jeopardy, though a limb or organ may have sustained crippling injury. The status of the patient is, for the moment at least, relatively stable and evacuation may take place as transport becomes available. Approximately 40% of patients are normally in this category; and

d. **Priority 4** - Deferred. There are two groups within this category. In the first group, neither life nor limb will be jeopardized by delaying treatment of evacuation, until the higher priorities have been dealt with. Approximately

20% of the patients are normally in this category. In the second group, the deferred category may also be assigned to the patient whose injuries are so massive that the probability of survival is beyond reasonable hope. This is particularly applicable if the concentration of resources on such a patient would prejudice the treatment of patients with a better prognosis.

8. **Evacuation**. Patient evacuation is the timely, efficient movement of the sick and injured from the battlefield and other locations to medical treatment facilities, and between facilities as required. The patient evacuation system is depicted at Figure 6-1. Evacuation begins at the location where the injury or illness occurs, and continues only as far rearward as the patient's medical condition warrants or the military situation requires.

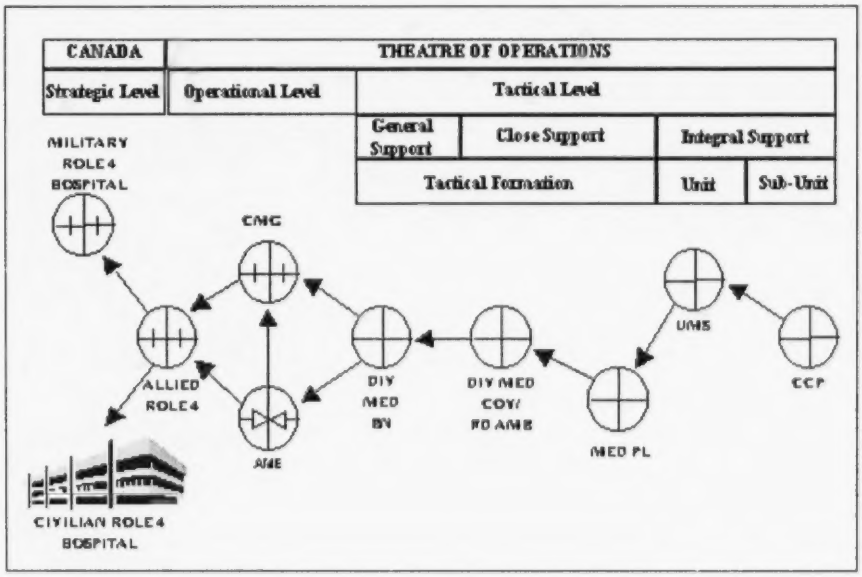

Figure 6 - 1 The Patient Evacuation System

9. At times during tactical operations, it may be impossible to evacuate all patients and they may become subject to capture by the enemy. In these circumstances, the minimum number of medical personnel and supplies necessary for their treatment remain with the patients. The decision to abandon patients to the enemy belongs to the formation commander. It is the duty of the formation surgeon to present to the commander the information necessary for him to arrive at his decision.

10. Within an area of operations, patients may be evacuated by individual carriers, litter bearer teams, ground vehicles, aircraft, watercraft, or any combination of these means. The specific mode of evacuation may be determined by availability, the operational situation or weather conditions. When both air and ground ambulances are used, the determination of which patients are evacuated by each means is based upon the clinical condition of each patient, with primary consideration being given to the means which contributes most to the patient's well-being and least to morbidity.

11. **Preventive Medicine**. Preventive medicine services enhance unit effectiveness by reducing the exposure of soldiers to disease and other environmental hazards. These services are normally provided at all levels of medical support in an area of operations. Preventative medicine services can include:

a. the control of animal, water, food-borne diseases;

b. the supervision of immunization and drug prophylaxis;

c. the control of excessive exposures to occupational hazards; and

d. the education of soldiers on appropriate hygiene practices.

12. Preventive medicine is wholly dependent for success on the interest and support of commanders at all levels.

13. **Stress Reaction.** Stress Reaction is a term which encompasses an array of reversible effects caused by the stresses of operations, and refers to the temporary psychological upset causing an inability to function normally (including the ability to engage the enemy and survive). Stress reaction management is a leadership function.

14. Combat Stress Reaction (CSR) encompasses the terms Battle Fatigue, Battle Shock, and Critical Incident Stress as well as older terms such as Shell Shock and Combat Exhaustion. The incidence of CSR is related to many factors including the length, type and intensity of battle.

15. Even the strongest of individuals are susceptible to stress reaction, but positive preventive measures can be taken to minimize the number of casualties. Every effort should be made to develop unit and sub-unit

cohesion with emphasis being placed on group identification, a sense of individual confidence and permanency, morale, faith in leadership and a common trust between members of the unit. Patriotism and love of country should be fostered and individuals must understand and identify with national aims and objectives. Commanders must develop in their personnel a belief in the cause for which they may be required to fight, and individuals must also be prepared to trust their immediate friends and leaders. A high degree of physical fitness must be developed as a means of combating fatigue and, if necessary, to find the personal limits of endurance. Personnel must be made aware of the effects of stress, and therefore encouraged in the belief that experiencing stress trains individuals to recognize their faults, and to be able to overcome stress effects without becoming a casualty. Preventive measures address the more insidious aspects of fear - that of the unknown - by familiarizing personnel with the real capacity of the enemy in terms of anticipated tactics, technology and weapons effects. Prevention also calls for a strong social support system (e.g., security of family). Finally, the importance of hard realistic training with an intensity and duration of the expected operations cannot be overemphasized.

16. CSR is a normal reaction to a very abnormal situation and does not constitute a psychiatric illness although, incorrectly managed, may become one. CSR may present as depression, agitation or psychosis. Stress reaction casualties are divided into two basic groups. The first includes those personnel whose management can be effected by supervisors within the formation, and who should never have to enter the medical system. However, a casualty who has exceeded an arbitrary time limit for treatment and continues to have significant symptomology is considered to be a psychiatric patient and is managed through medical resources.

17. **Medical Intelligence**. Medical intelligence is vital in operational and tactical level planning as well as in the development of strategic medical support plans. This intelligence is needed by medical planners in order to develop health services support responsive to the unique aspects of a theatre of operations. Foreign military forces and health service capabilities are also assessed by medical intelligence, as are health hazards unique to a given locality. With multinational task force alignments becoming more common and increased reliance on host nation support, factors such as environmental contamination, endemic diseases and biotechnical hazards can present significant threats. Good medical intelligence allows for sound preparation for operations, contributes to force confidence and enhances effectiveness.

18. **Medical Replenishment.** The provision and maintenance of medical materiel is an integral part of the medical support system. Included under the broad heading of medical materiel (Class VIII stock items) are: medical equipment such as surgical instruments; panniers and major items such as x-ray machines; as well as consumable medical items; such as pharmaceuticals; dressings; blood substitutes, and medical gases. The medical materiel replenishment system is managed separately from the general supply system. In this manner, the materiel:

a. follows a more direct path to user units and is responsive, to ensure that patient care is not prejudiced because of lack of specific items;

b. is eligible to obtain protection under the terms of the Geneva Conventions; and

c. is stored under tightly controlled conditions by highly trained professionals who are thoroughly knowledgeable in and can advise on the specialized requirements and use of medical materiel.

19. With the medical replenishment system established in parallel, along patient evacuation channels, evacuation transportation can be used for both delivery and backloading of medical materiel.

20. **Administrative Responsibility for Patients**. The medical services are responsible for the feeding, clothing, discipline, general welfare and disposal of patients from the time they come under medical care until they are discharged to duty or evacuated from the area of operations. The medical services are not responsible for the collection and burial of the dead, except for their own dead and those who die while being given medical care.

SUMMARY

The health services support system is a single, integrated system that reaches from the forward area of the CZ to Canada. The HSS system is designed to optimize the return to duty, of the maximum number of trained combat soldiers at the lowest possible level of support. The HSS system must enhance our operational designs by extending the operational limits as far as possible.

CHAPTER 7
SUSTAINMENT ENGINEERING

ROLE

1. Sustainment engineering involves the provision of engineer advice, technical expertise, resources and work to allow the force the ability to maintain, reconstitute, and regenerate itself.

ROLE

SUSTAINMENT ENGINEERING

TASKS

- Rear Area Restoration
- Maintain Lines Of Communications
- Vertical Construction
- Utilities
- Civic Engineering

SUMMARY

SUSTAINMENT ENGINEERING

2. Engineers performing sustainment engineering tasks are not equipped with the same equipment, mobility and ballistic protection as those supporting the manoeuvre force. Sustainment engineering tasks require large amounts of construction materials, which must be planned for, produced, and provided in a timely manner.

3. Sustainment engineering is conducted mainly to the rear of the forward manoeuvre elements and is primarily concerned with engineer work other than mobility, counter-mobility and survivability tasks provided directly to combat operations. Sustainment engineering tasks tend to be of a more permanent nature than combat engineering tasks and are usually designed with future developments in mind. General support units perform sustainment engineering.

4. There are three levels of sustainment engineer support to operations as follows:

a. **Strategic Level**. For Canadian only operations, National Defence Engineering staffs, on behalf of the CDS, is responsible for planning and co-ordinating engineer

support. For multinational operations, the Alliance Headquarters is responsible for co-ordinating strategic level engineer support. National Defence Engineering staffs will co-ordinate Canadian specific requirements in concert with the strategic direction issued by the Alliance Headquarters.

b. **Operational Level**. For Canadian only operations, the Force Engineer is responsible to the Force Commander for co-ordinating engineer support to the force. In combined operations, the Force Engineer is responsible for providing specialist and technical engineer support to Canadian engineers at the tactical level. The Engineer Support Unit is one of the many theatre engineer units. The Theatre Engineer is responsible for co-ordinating the engineer effort, and performs engineer work in the communications zone.

c. **Tactical Level.** For Canadian only operations, component engineers are responsible for co-ordinating tactical level engineer support for their components. For multinational operations, this function is performed by corps and division engineers. Corps engineers normally work in the rear combat zone and augment divisions and independent formations, while division engineers work in the forward combat zone.

5. Engineer support to operations is discussed in greater detail in B-GL-361-001/FP-001 *Land Force Engineer Operations*.

TASKS OF SUSTAINMENT ENGINEERING

6. Sustainment engineering is but one of the tasks performed by engineers on the battlefield. It may be performed by a combination of engineer units, civilian contractors and host nation support. Sustainment engineering tasks could consist of the following:

a. **Rear Area Restoration**. Rear area restoration is the return of the infrastructure to a usable condition. It permits the continuation of operations in the rear area, including: conducting damage assessment, controlling

flooding, fire protection, restoring basic utilities, disposing of human and hazardous waste, and clearing debris and rubble.

b. **Maintenance of the Lines of Communications**. The maintenance of the routes that connect the formation to its sustainment base, along which combat supplies and follow-on forces move, including: the construction of roads, the maintenance of main supply routes, the repair and replacement of bridges, the upgrade and expansion of landing zones, the construction and expansion of airfields, the conduct of quarry and pit operations, and to support beach, port and riverine operations.

c. **Vertical Construction (Accommodation)**. Establish facilities that provide deployed forces with protected, healthy and safe accommodations. This also includes: management and contracting for real property (from acquisition to disposal); construction and maintenance of base storage and distribution facilities; refurbishment and repair of fixed facilities; establishment of initial or temporary standard camps; and the production of construction material.

d. **Utilities**. The provision of utilities, including power, water and sewer is critical to sustaining operations. Utilities can be acquired through contract, construction or repair. Other related tasks include: the supply of mobile electric power; the construction of terminal pipelines and bulk storage facilities; produce bulk potable and non-potable water; the operation, maintenance of power production equipment; and the provision of environmental services such as sewage and waste disposal.

e. **CIMIC Engineering**. CIMIC engineering promotes stability in the formation area of influence. Tasks often include: the dismantling of fortifications, restoring utilities for non-combatants, reopening non-essential lines of communication, co-ordinating host nation (engineer) support; and providing fire fighting services.

SUMMARY

7. The main tasks included in sustainment engineering include rear area restoration, the maintenance of L of C, vertical construction (accommodations), utilities and CIMIC engineering. These tasks provide the routes and facilities required for the sustainment effort. Engineers performing these tasks are not equipped with the same equipment, mobility and the ballistic protection as those supporting the manoeuvre force nor do they accomplish their tasks. The nature of sustainment engineering tasks will require much planning, time and material. Command and control of these assets are centralized at the operational level due to cost, complexity, control and permanency.

CHAPTER 8
SUSTAINMENT IN UNIQUE OPERATIONS, SPECIFIC ENVIRONMENTS AND OPERATIONS OTHER THAN WAR

INTRODUCTION

1. The Sustainment principles outlined in the previous chapters were developed based on the general type of combat in temperate climates. There are other types of operations and environments that provide significant additional challenges to sustaining the operations. In this chapter the challenges and the principles of sustaining a force involved in unique operations, unique environments and operations other than war (OOTW) are discussed. For the purpose of this manual, unique operations consist of airborne and airmobile operations, amphibious operations and encircled forces operations. The specific environments discussed are cold weather, built-up areas, mountains, desert, jungle and NBC environments. Finally, under the title of OOTW sustainment of peacekeeping operations, peace enforcement operations and domestic operations are discussed.

INTRODUCTION

UNIQUE OPERATIONS

- AIRMOBILE / AIRBORNE OPERATIONS
- AMPHIBIOUS OPERATIONS
- ENCIRCLED FORCES OPERATIONS

SPECIFIC ENVIRONMENTS

- COLD WEATHER
- BUILT-UP AREAS
- MOUNTAINS
- DESERT
- JUNGLE
- NUCLEAR, BIOLOGICAL AND CHEMICAL ENVIRONMENT

OPERATIONS OTHER THAN WAR

- PEACE SUPPORT OPERATIONS
- DOMESTIC OPERATIONS

SUMMARY

UNIQUE OPERATIONS

2. Details of the conduct of unique operations and operations within specific environments can be

found in B-GL-300-002/FP-000, *Land Force Tactical Doctrine*.

AIRMOBILE/AIRBORNE OPERATIONS

3. Airmobile or airborne forces may be employed independently or in conjunction with other land forces. Sustainment of forces involved in airmobile and airborne operations is based on several factors. As airmobile and airborne forces deploy with minimal CSS holdings, the force must be replenished by external CSS elements if the operation is extended beyond the time planned. Normally, replenishment of these forces must be either by aviation assets or via air drops of supplies. This will require extensive co-ordination with either Canadian or Coalition aviation or air staffs.

4. The link up by a ground force has special considerations for CSS planning staff. The ground force should be prepared to provide immediate sustainment support to the deployed airmobile or airborne force if it is expected to continue operations immediately on linkup. Additionally, the link-up force must be prepared to assist with medical evacuation, equipment repair and reconstitution operations as required. Finally, it may be necessary to extricate the airmobile/airborne force, as it is replaced with a mechanized force, and move the personnel and equipment to a holding area for subsequent operations.

AMPHIBIOUS OPERATIONS

5. Amphibious operations, are dependent on weather, some level of surprise and the selection of the most opportune time and place to effect the assault. Close co-ordination is required between the elements of the naval and land force. Amphibious operations differ from airmobile/airborne operations in that the landing force is sustained by the naval force carrying it and its integral sustainment organization, until such time as it can receive sustainment from formation or strategic assets. Naval replenishment will continue until a secure beachhead has been achieved. As the operation matures and the beachhead is expanded and a firm lodgement is established, sustainment resources will begin to be echeloned from seaborne holdings, through sustainment staging points to the deployed forces.

ENCIRLED FORCES OPERATIONS

6. Given the circumstances of encircled forces operations, immediate sustainment will be the responsibility of any integral or other sustainment assets found within the encircled force. Sustainment of an encircled force, must be performed primarily by air and/or aviation assets. This will require co-ordination at all levels and will be dependant on the capabilities of air or aviation assets, enemy air and air defence activities and the weather.

7. Encircled forces operations usually end either in link-up with friendly ground forces or capture. The link-up plan requires detailed co-ordination of the sustainment effort needed by the encircled force. Ammunition, fuel, rations and casualty evacuation will probably be needed as soon as a link-up corridor is established. Recovery support will be needed during the withdrawal and preparations for a reconstitution operation will need to be in place to return the encircled force to a high level of combat effectiveness.

SPECIFIC ENVIRONMENTS

8. Factors such as terrain and climate encountered in some areas of operations dictate that the sustainment operations be modified to overcome the special problems associated with extreme environments. Any element, unit or formation can adapt itself to fight in specific environments provided it is given time for preparation and training. However, all units require modifications and adjustments to their mindset, equipment holdings, types of transport, weapons and equipment for the period of such operations. The types of operations in specific environments that are dealt with in this manual are: cold weather, built-up areas, mountains, desert, jungle and nuclear biological and chemical conditions.

COLD WEATHER

9. Success in combat operations in undeveloped cold weather areas is dependent on adequate support plans. Adequate support plans must be developed before a force is committed to a cold weather climate area. Sub-arctic warfare differs from arctic warfare in that large scale sustained operations are possible, whereas they cannot be considered as likely or possible in the arctic in the near future. Winter conditions in the sub-arctic are typified by heavier snowfall.

10. The main areas of concern to sustainment are: lack of civilian infrastructure and personnel; lack of a road network; lack of navigational aids; problems with frozen supplies and drugs; equipment and personnel performance are reduced; and the additional use of specialized fuel and rations.

11. Sustainment practices that should be utilized in cold weather environments are; increased holdings of fuel and rations, maximum use of air resupply, emphasis on equipment preventive maintenance, and forward siting.

BUILT-UP AREAS

12. Support of built-up areas operations requires the highest degree of ingenuity, improvisation and creativity on the part of combat service support commanders and staffs. Such operations provide the opportunity to use civilian workers, supplies and equipment to support the operational plan.

13. Fighting in built-up areas (FIBUA) operations offer a special challenge which sustainment planning must take into account from the outset. Friendly forces are scattered into small elements through out the built-up area. Movement is largely restricted to obvious routes. Even in a favourable air situation, concealment favours the defender and the aggressor has limited observation and fields or fire. Fighting is disjointed and the emphasis is on leadership at lower levels in all arms and service units. There is a dramatic increase in ammunition consumption.

14. Considerations that must be taken into account in sustaining forces in FIBUA operations are: transportation services require special consideration due to sniper activity, rubble, and route damage; distribution of combat supplies is pushed to units; numerous small caches of combat stores must be set up to support the scattered troops; and the supplies delivered must be man-portable. There will be higher than usual battle casualties, requiring advanced surgical centres to augment forward medical stations.

MOUNTAINS

15. Mountainous regions frequently contain high ridges and spurs running out from the main features, with deep valleys and gullies between them. The slopes are generally very steep. These features hinder movement, whether on foot or by vehicle. Roads and railways generally follow the valleys, which may be wide enough to allow some lateral dispersion, but are often narrow gorges where only dispersion in depth is possible. Due to the excellent observation possibilities afforded by the surrounding features, it must be assumed that the force is under observation and therefore susceptible to indirect as well as direct fire. Supply convoys are very vulnerable to air attack, ambushes, and snipers. Foot path and animal tracks usually follow the spurs and ridges because movement across the grain of the country is difficult.

16. Extreme variations of temperatures and rainfall occur with the seasons, and between comparatively small differences in altitude. Generally, the weather is variable. Sudden storms may wash away roads or cause landslides to block them, hamper movement on tracks, and change dry riverbeds into dangerous torrents.

17. The principles that can be used to sustain a force in a mountain environment are: maximum use of light, all terrain vehicles due to the lack of road structure; no mass movement of transport should be undertaken, established stocks of combat stores must be held well forward; emphasis must be placed on forward vehicle repair since back-loading is difficult; maximum use of helicopter evacuation should be used; and medical sites should be sited well forward to reduce the time taken for evacuation from the UMS.

DESERT

18. Sustainment in the desert is more difficult than in a well developed country. The peculiarities of the desert, however, increase the importance of sound administration and emphasize, to some degree, the application of certain fundamentals and procedures. The main characteristics of the desert are: shortage of water; lack of normal transportation systems; absence of civilian resources; the scarcity of landmarks and the lack of cover; sand storms and the ever changing landscape and scope of mobility.

19. The challenges offered to sustainment by the desert environment include: lack of concealment, lack of navigational landmarks, excessive wear on vehicles, increased consumption of POL and water, lack of road network, longer lines of communications and evacuation routes, reduced work performance and high heat related casualties.

20. Sustainment planning principles that should be observed in the desert environment are: maximum use of air supply should be considered, exceptionally high standard of vehicle maintenance must be enforced, increased scaling of repair parts and major assemblies should be held and hospitals should be sited forward to mimimize evacuation distances.

JUNGLE

21. Countries which have excessive areas of jungle are normally in the tropics and have heavy rainfall. The fundamentals of sustainment in jungle operations are unchanged from those in other operations, but due to the nature of the terrain, the methods used to sustain a force are different. The characteristics of a jungle environment are: lack of paved or track network, heavy rainfall coupled with extreme humidity, few local supplies and suppliers, and a shortage of a local labour force.

22. The challenges offered to sustaining a force in the jungle are: difficulty in troop and supply movement, long lines of communications and evacuation routes, increased rates of non battle injuries caused by disease, decreased work performance due to heat and humidity, and excessive wear and tear on vehicles and weapon systems.

23. Sustainment considerations that must be taken into account are: reduced reliance on roads for transport, maximum use of helicopter for resupply and casualty evacuation, a high standard of vehicle maintenance must be established, a priority must be placed on preventative medicine to include a high standard of hygiene, and replenishment and medical facilities should be placed further forward if possible.

NUCLEAR, BIOLOGICAL AND CHEMICAL ENVIRONMENT

24. Operating in an NBC environment inflicts a burden on all the sustainment systems, including sustainment engineering. The important

characteristics of an NBC environment are: possible shortages of potable water and rations, increased demands for transport and supplies, an overflow of casualties in the HSS system and a general reduction of work performance attributable to having to work in individual protection equipment (IPE).

25. Sustainment factors that must be considered are: increased stock holding of IPE and rations due to contamination; extra transport for the additional requests for moving troops and supplies; mass casualties and NBC stores; HSS facilities must be capable of treating "clean" and "dirty" soldiers; and additional engineer support requests for the removal of contaminated soil and materiel and the installation of additional systems for collective protection (COLPRO).

OPERATIONS OTHER THAN WAR

26. Operations Other Than War (OOTW) are classified as Peace Support Operations (PSO) and domestic operations. PSO are further divided into Peacekeeping Operations and Peace Making.

PEACE SUPPORT OPERATIONS

27. **Peacekeeping Operations.** The Army has participated in most peacekeeping missions under the auspices of the United Nations. Sustainment of our forces on peacekeeping duties is a special challenge. Given that these are usually small units located thousands of kilometres from home, that host nation support (HNS) can seldom provide the bulk of resources required by the unit, and that the UN is often slow in establishing its sustainment, it is imperative that the initial sustainment resources arrive at the same time as the deployed forces. Some of the additional considerations which planning staffs must take into account include:

a. **Creation of ad hoc National Sustainment Units**. There is usually a limit on the number of troops deployed for such operations. Commanders ensure that there is sufficient balance between manoeuvre arms, support arms and CSS. It is this balance which provides for maximum combat power within the force structure limitations.

b. **Replenishment Considerations**. Replenishment will usually be based on common items like fuel, rations and

water being provided through the UN sustainment system. The replenishment of Canadian unique items takes more time. Peacekeeping missions usually receive a periodic sustainment flight due to the extented lines of communications. Often there are more items than space on these flights causing delays in replenishment.

c. **Contracting**. The capability of contracting with the Host Nation or neighbouring countries reduces the requirement to ship from Canada. Peacekeeping operations tend to be static in nature and following the initial deployment period, the replenishment of such items as fuel, fresh rations and water from the local economies is often acceptable and contracting activities will be co-ordinated though the UN Force HQ.

d. **HSS.** Units often deploy with only limited medical support. As the area in which the force operates has just been a war zone there are usually few local hospitals, which can provide additional support. The result is that the medical staff must develop a comprehensive method of providing medical care on an individual basis for the soldiers in that mission including a rapid method of medical evacuation from the theatre to Canada. Canadian medical support can be augmented by acceptable local hospitals or allied medical facilities.

e. **PSS.** Personnel support takes on an added importance. Soldiers are often performing very important tasks, although often tedious and boring, such as standing guard at an outpost. The support programmes designed to fill the soldier's off duty time and provide rest and recreation as well as leave programmes are very important. The development and maintenance of support for families at home is key to the maintenance of the soldiers' morale.

28. **Peace Enforcement Operations**. Sustainment of peace enforcement operations reflects the planning needed for warfighting more than peacekeeping. The initial risk to the forces is relatively high, given that they will be deploying into an area in which two or more combatant sides are conducting a conflict. Also, one or more of these forces is often in

opposition to the peace enforcement force's deployment into the region. Therefore the initial deployment into the area of operations is conducted with a great deal of force which requires adequate levels of sustainment stocks and well developed contingency plans.

29. Some of the planning considerations for sustainment of a peace enforcement force include:

a. **Lead Nation concept**. There is usually a Lead Nation and a formal agreement between nations on the sustainment of the forces prior to the commencement of the operation, something that seldom occurs in peacekeeping operations. This means that the sustainment and personnel staffs must establish adequate liaison to effect the support needed.

b. **Contracting**. Fuel, water and fresh rations are normally acquired through the agreement or purchased in the local area, which in some parts of the world could mean hundreds of kilometres from the unit.

c. **Self-sufficiency**. The level of risk to the soldiers throughout their tour is higher than would be the case in a peacekeeping mission. Reserves of combat supplies will need to be distributed to section and platoon level as small sections and platoons are often cut-off for some periods of time. Military intervention is often impractical as political stalemates and negotiations are the norm.

d. **Repair and Recovery.** The equipment is usually handed from unit to unit on rotation and is heavily used throughout the tour. Maintenance programmes must be well developed, especially operator level maintenance and preventive maintenance inspections. Repair parts availability can be a problem because of the length of the lines of communications. In establishing the policy on robbing of parts and cannibalization, the commander will have to evaluate the mission requirements.

e. **PSS.** The personnel support requirements, especially stress management, recreation and welfare programmes take on added importance. Effective personnel support

programmes promote the highest possible level of personnel availability throughout the unit tour.

DOMESTIC OPERATIONS

30. Domestic operations refer to those operations of the Army that are in support of the federal or provincial governments and which are conducted in Canada. Examples include the FLQ crisis of 1970, the support to the Olympics in 1976 and 1988, the Oka Crisis, the Quebec and Winnipeg Floods and Ice Storm 1998. Sustainment of domestic operations relies upon the network of Areas and Bases throughout Canada. Factors which should be considered in the event of a domestic operation include the following items:

a. Liaison should be established as early as possible at both the Area HQ and at the designated support base.

b. Stocks and spare equipment should be pre-positioned early.

c. Evaluation of the support requirements needed to aid the civilian population will need to be included and contingencies made to obtain tentage, food, water etc. should it become necessary to support the civilian population.

d. Finally, the assistance required to support other government departments, local police forces, etc. should be forecast and early liaison established with these organizations.

SUMMARY

31. Sustainment of unique operations, operations in specific environments and operations other than war (OOTW) offer specific challenges. Unique operations, which include airmobile and airborne operations, amphibious operations and encircled forces operations require support of forces along lengthy and often tenuous line of communications. Specific environments pose real challenges as each environment requires

careful planning to ensure success. Finally, OOTW operations, both peace support and domestic operations , differ considerably from combat operations.

CHAPTER 9
RECONSTITUTION OPERATIONS

INTRODUCTION

INTRODUCTION

RECONSTITUTION OPERATIONS

THE RECONSTITUTION PROCESS

CSS CONSIDERATIONS

SUMMARY

1. Reconstitution is an extraordinary action planned and implemented to restore a desired level of combat effectiveness to units or formations. Above all, a reconstitution operation is a combat operation. It occurs after a unit or formation has been in combat and suffered a high level of casualties. There is a need, because of the level of casualties to conduct a separate operation to restore a specified level of combat effectiveness prior to the unit or formation conducting another operation.

2. A reconstitution operation may be planned in advance or be the result of higher than expected losses during an operation. The critical part of reconstitution is the training, assessment and certification of the combat capability prior to employing the unit or formation on the next operation.

3. Reconstitution operations are controlled by a higher-level headquarters, either one or two levels up. For the remainder of this chapter it is assumed that a reconstitution operation could happen to a unit within a brigade group or division and that the next level is the National Command Headquarters at the operational level.

4. History has shown that it is often impossible to complete a reconstitution operation because the tactical situation is perilous. When time does not permit the full reconstitution process to occur, the maximum combat power achievable under the circumstances will be achieved if the principles of reconstitution are followed to the maximum extent possible.

RECONSTITUTION OPERATIONS

5. Following combat a unit completes a **reorganization.** This is the normal activity of assessing the number of personnel and equipment

casualties and the level of combat supplies, especially ammunition, and making adjustments to internal organizations in preparation for the next combat activity. Reorganization is completed with the resources, both in personnel and equipment, already assigned to the unit or formation.

6. **Rehabilitation** is the term used to describe the process of restoring the combat power of a unit or formation that has suffered significant personnel and equipment casualties but remains capable of conducting combat operations. In general, a unit requires rehabilitation if it has suffered between twenty and fifty percent casualties in personnel or major fighting systems. Rehabilitation operations are usually controlled by the next higher headquarters.

7. The most severe reconstitution operation, **regeneration**, occurs when a unit has sustained such heavy casualties that it is no longer capable of conducting combat operations. A unit that has lost more than fifty percent of its personnel, key leadership or major fighting systems is said to be non-combat effective. A non-combat effective unit will require a significant effort to return it to a capable fighting element and, at least until it has a chance to conduct some training, will be vulnerable to complete destruction if faced with an enemy attack. Regeneration operations are usually controlled by the headquarters two levels up.

THE RECONSTITUTION PROCESS

8. The processes of rehabilitation and regeneration are similar, although each is controlled by different level of command. This section outlines the steps in the reconstitution process as shown in Figure 9-1. The process includes the commander's guidance, establishing command and control, reorganization of the unit, movement, regeneration of the unit, training and subsequent operations.

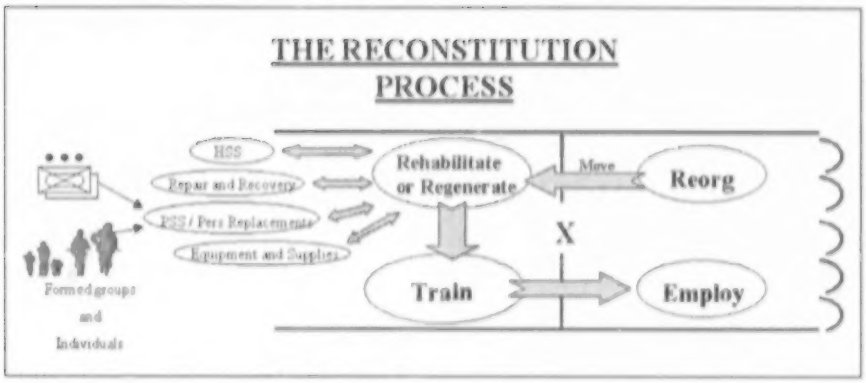

Figure 9 - 1 The Reconstitution Process

9. **Commander's Guidance**. The commander who orders the unit to undergo rehabilitation or regeneration ensures that his guidance is clear. The commander's intent will usually specify the level of combat capability to be achieved before the unit is certified ready for combat as well as any limitations. The commander must also ensure that he has allocated the necessary resources, both staff and CSS elements for the intent to be achievable. Of particular importance will be assigning command of the rehabilitation or regeneration operation to an officer capable of certifying that the desired level of combat effectiveness has or has not been achieved.

10. **Command and Control**. It is imperative that responsibility for the rehabilitation or regeneration of the unit be assigned to an officer capable of commanding all activities and certifying that the unit has achieved the target level of combat power before it is committed to further combat operations. For rehabilitation of a unit, the formation commander will usually appoint an officer of at least equal rank to the unit CO to command the activities. For regeneration of a unit it will be the Division Commander or National Commander who will designate the officer to co-ordinate the regeneration.

11. In principle, the commander of the rehabilitation or regeneration operation will be given operational command of the unit undergoing rehabilitation or regeneration, assigned protection elements and the CSS elements necessary to complete the operation. The appointed commander must also have a small number of staff officers from the formation staff to allow him to complete the initial assessment of the task, plan the operation, select an area, conduct the training and evaluate the combat capability of the unit.

12. The key to returning any unit to the highest possible level of combat effectiveness is to ensure that the integral chain of command remains in place and is in control of the unit. The unit CO will play an important part in rebuilding the unit, encouraging his officers and senior non-commissioned officers, and helping all members to cope with the past events. Further, the chain of command will be instrumental in welcoming the replacements and quickly integrating them into the unit. All activities must be aimed at supporting the chain of command and returning the unit to the highest level of cohesiveness and tactical capability possible within the constraints of time and resources available.

13. **Reorganization**. The unit will complete its reorganization immediately after combat and provide a detailed assessment of holdings and losses. If it remains combat effective, but requires assistance to regain its combat power, it will ask for a rehabilitation operation from its higher headquarters. Should the unit CO determine that his unit is no longer capable of conducting combat operations, he must advise his commander that the unit is non-combat effective. It is through the information gained in the assessment of losses that the numbers of personnel and equipment replacements will be determined and the designated commander will begin planning how and where the regeneration operation will be conducted.

14. **Movement**. It is usually necessary to rehabilitate or regenerate a unit out of contact. The officer designated to command the rehabilitation or regeneration operation determines the location where the operation is to take place and orders the unit to move at the appropriate time. For non-combat effective units it may be necessary to provide a protection force to ensure the unit does not become engaged by the enemy during the movement. The CSS elements may also be ordered to move to the designated area and prepare to complete the regeneration.

15. **Regeneration**. The designated commander selects an area for the regeneration operation based on time available, protection of the force and availability of a training area. The CSS elements establish a reception centre within the area of the rehabilitation or regeneration operation. Upon arrival the unit is assessed as to its state. Its personnel are given medical treatment, receive replacement equipment for that lost or damaged and provided personnel support services including stress management, religious services and amenities. The unit's equipment is inspected and where possible repaired. Replacement personnel and equipment are then provided to return the unit to its war strength in readiness for future operations.

16. Whenever possible personnel replacements should be in formed groups such as companies/squadrons/batteries or platoons/troops as the integration into the unit is easier and they are already trained to a higher level. Individual replacements will also be needed in the support trades or in the combat trades to fill the current vacancies. Replacement personnel must be quickly assimilated into all unit activities and become familiar with the unit standing operating procedures (SOPs).

17. It will usually take a minimum of twelve hours for a unit to arrive in the assigned area, complete the evaluation, receive medical care and maintenance services, and receive the replacement equipment and personnel. It is only at this point that it is capable of starting to train for the future mission.

18. **Training**. Upon completion of the regeneration the unit will be at a specified level of personnel and equipment. Even if the unit achieves 100 percent of its strength in personnel and equipment it will remain at a low level of combat effectiveness until it has had time to complete its sub-unit and unit level training. This training can be completed fairly rapidly, as many of the remaining soldiers are now combat veterans and the emphasis on using formed groups of replacements will mean that many are already at a fairly high level of training.

19. The designated commander will order the unit CO to take his unit through training exercises and will provide the support and evaluation organizations to control the training activity. The training will usually be constrained by time, meaning that there is seldom sufficient time to complete all of the desired training. At the end of the training the designated commander will provide an evaluation of the readiness of the unit and provide certification of the combat capability to the commander who ordered the reconstitution and the level to be attained.

20. Determining the combat effectiveness at the end of the training will often be a subjective assessment by the designated commander of the reconstitution operation. In principle it will take a significant period of time to have a unit at 100 percent combat capability. For example, a unit that was non-combat effective, once provided replacement personnel and equipment would only be approximately 50 percent combat effective. It is believed that under favourable conditions such as proper training facilities, adequate levels of combat supplies and strong leadership, the combat effectiveness would improve to about 90 percent with five days of training at the sub-unit and unit level or approximately eight percent per day. It is

estimated that it would take a further week of training for a unit to become 100 percent combat effective.

CSS CONSIDERATIONS

21. The commander must provide the designated commander of the reconstitution operation with sufficient CSS assets to complete the task. As the actual status of the unit will not be known in detail until it arrives in the rear area, the staff must make a best guess as to the resource requirements. Detailed plans should include certain aspects of Health Service Support, Personnel Support Services, repair and recovery, personnel replacements and equipment and supplies replacements as outlined in the following paragraphs.

22. **HSS**. The immediate priority will be to provide medical treatment and evacuation to injured personnel. Given that the unit has sustained a significant number of casualties many will have already been treated or evacuated. There should be a medical element at the reception centre to allow for the rapid clearing of casualties and allow the remainder of the reconstitution operation to proceed as quickly as possible.

23. **PSS.** The inclusion of personnel support services into the reception of the unit is important. The survivors should be suffering from having lived through a very serious situation and will benefit greatly from having a chance to relax, have a few amenities, attend stress management briefings and talk with a padre. Even if only a few hours are provided to the soldiers to "get it together" before starting to train for the next mission, the benefits to unit morale and cohesion will be greatly enhanced. Additionally, rapid and compassionate mortuary affairs services are important to enhance troop morale.

24. **Repair and Recovery**. Inclusion of a maintenance element to assess the equipment of the unit, repair that can be repaired and recover the equipment which is to be back loaded will rapidly clear the unit of all non-serviceable equipment and allow the unit to replace missing vehicles and equipment.

25. **Personnel Replacements**. Personnel replacements are provided as individuals, crewed-vehicle replacements or as formed groups. Canadian replacements are held within the operational level at the CSG. The National Commander, based on the recommendation of the tactical commander, will

provide the replacement personnel. The designated commander of the reconstitution operation will co-ordinate the movement of the replacements to the unit.

26. **Equipment and supplies replacement**. The unit will require that much of its equipment be replaced as it will have been damaged or lost in the previous battle. This replacement includes all types of equipment: combat systems, small arms, ammunition, unit stores, sustainment stocks, and the kit of the individual soldiers. The CSS elements should include all aspects of supply including general and technical stores, repair parts, and combat supplies.

Summary

27. Reconstitution is the process of returning a unit or formation that has sustained significant casualties in a previous operation, to a specific level of combat power in preparation for a subsequent operation. Reconstitution operations include rehabilitation or regeneration. Rehabilitation is the restoration of combat power of a unit or formation that remains capable of conducting combat operations. Regeneration refers to the restoring of the combat power of a unit or formation, which has become incapable of conducting combat operations. The reconstitution process involves: the reorganization of the unit or formation; its rehabilitation or regeneration; the training for future operations; and the certification, of the unit or formation, as being deemed combat capable.